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THE RELATIONS OF HUMAN AND VETERINARY PARASITOLOGY *

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WASHINGTON, D. C.

Human parasitology concerns itself with the parasites of man. Veterinary parasitology concerns itself with a much larger field, one so large that it is a bit difficult to delimit it. For the most part, veterinarians deal with the diseases of domesticated animals, and even these constitute a much larger group of animals than one might assume on first thought. They include not only the horse, ass, mule, cow (*Bos taurus*), sheep, goat, pig, dog, cat, chicken, turkey, guinea fowl, pea fowl, duck, goose, swan and pigeon, but also the water buffalo (*Bos bubalis*), Indian cattle (*Bos indicus*), reindeer, musk ox, yak, camel, dromedary, llama, elephant and ostrich. In addition to these domesticated animals there are the semidomesticated ones, especially the large group of fur-bearers, such as the fox, otter, muskrat, mink and seal, the large group of game animals, such as bear, deer, bison, elk and antelope, and the game birds, such as quail, pheasant, grouse, partridge and dove; and the diseases and parasites of these animals fall within the purview of the veterinarian and the veterinary parasitologist. The veterinarian finds a professional field in the treatment of diseases of animals in zoological gardens and parks. Nor can the line be drawn there. In Europe the veterinarian and the veterinary parasitologist are called on to study the diseases and parasites of fish. This would seem to be about the limit of veterinary activity at present, but the parasitologist who investigates the parasites of mollusks, annelids, echinoderms and coelenterates is actually extending the activities of one phase of the veterinary field over a somewhat larger area than has been occupied in a similar way by the veterinary pathologist, bacteriologist and therapeutist. In effect, the physician limits his practice to man; the veterinarian takes the medical topics in the remainder of the zoological field.

The parasitologist ranges over the entire host field from man to the protozoa. The parasites themselves range over sections of this field with overlaps from group to group, the overlaps including, among others, those of parasites which affect both man and various other groups of animals. It is with this overlap of parasites affecting man that this paper deals for the most part. These overlaps are of great importance and are too little studied. It is evident that the adaptation of parasites to new hosts is still going on widely and rapidly, so much so that new host species have become in recent years the important host species for certain parasites. An illustration of what has happened in this connection is what appears to have taken place on this continent in the way of transfers of parasites of native North American animals to our domesticated animals of a stock originally imported within the past 400 years.

TRANSFERS OF PARASITES FROM WILD ANIMALS TO DOMESTICATED ANIMALS

The parasites transferred from wild animals to domesticated animals include the following, many of them of great economic importance:

Flukes.—The large liver fluke of cattle, *Fasciola magna,* is evidently a present to our cattle from native deer, having first been described as occurring in a deer. This parasite also attacks sheep, but apparently more rarely and with more serious consequences to the sheep. It has been reported as having been found in the horse.

The salmon-poisoning fluke of dogs in the Northwest is a fluke which is highly pathogenic and commonly fatal for dogs. It is known to be present in a number of wild carnivores and probably has some native carnivores, presumably fish eaters such as the mink, as its original and normal host. It probably displays no such pathogenicity in these hosts as it does in dogs.

The lung fluke of dogs, cats and swine, *Paragonimus kellicotti,* has been regarded as identical with *P. westermanni,* but the evidence at present is to the effect that it is a native parasite of some North American mammal.

Dogs and cats have various opisthorchids, heterophyids and holostomes which are not known outside of North America and which originally were evidently native parasites of native carnivores.

Tapeworms.—The fringed tapeworm of Western sheep, *Thysanosoma actinioides,* is undoubtedly a normal parasite of wild Western ruminants and of native ruminants in South America. In sheep it occurs in the small intestine and in the bile ducts. In a postmortem examination of an elk in Wyoming I found specimens of this tapeworm in the fourth stomach, where each was rolled in a ball with the head at the center of the ball, a location and a form in which it is never found in sheep. Too little is known about this tapeworm in its normal hosts to permit a definite statement as to whether it usually occurs in the stomach or ever occurs in the bile ducts in these hosts.

Taenia balaniceps is a tapeworm which has been found in the dog and in the lynx, the latter or some other native carnivore being the normal host.

* Read before Section N of the American Association for the Advancement of Science, Des Moines, Iowa, Dec. 31, 1929.

Nematodes.—The gapeworm, *Syngamus trachea,* is a highly destructive pest of young chicks but cannot develop in these hosts when the birds are mature except in rare cases. It was normally and originally a parasite of the wild turkey, according to present evidence, and will develop in the domesticated turkey in birds of all ages.

The Brazilian hookworm, *Ancylostoma braziliense,* is evidently an accidental parasite of dogs and man, producing in man the "creeping eruption" of Florida and other Southern states. Its normal carnivore hosts may include American and Asiatic carnivores, as the Asiatic worm called *Ancylostoma ceylanicum* is the same worm.

The kidney worm of swine, *Stephanurus dentatus,* is a serious pest which appears to be responsible for condemnations of meat and lard in the federal meat inspection service amounting to probably $5,000,000 a year, aside from the damage it does to the health and condition of pigs. It has become a parasite of hogs in the past two centuries, apparently, and is probably a normal parasite of peccaries; in Panama City, peccaries slaughtered at the abattoir or brought to market frequently have this parasite.

The small red stomach worm of swine, *Hyostrongylus rubidus,* was first found in swine and in this country less than forty years ago, and has since been found in Europe and elsewhere. Like the kidney worm, it was probably a normal parasite of the peccary originally. Its effect on its normal host is unknown; it is a pathogen for swine.

In the past few months two new species of nodular worms in swine have been discovered in this country. The present evidence would suggest that these also are parasites now transferring over from the peccary to swine, and if a careful search of nodular worm material in Europe and other areas outside of the Americas does not disclose these parasites and a search of peccary material does disclose them, it may be assumed rather safely that here are new transfers of parasites from native wild animals to domesticated stock.

One of the most serious pests of American sheep is the nodular worm, *Oesophagostomum columbianum.* This was first discovered in this country and was described in 1890, although the lesions it produces in the form of nodules in the wall of the cecum and large intestine were known here for some years before then. The worm has since been discovered in other countries, and Sir Arnold Theiler tells me that in South Africa the presence of this worm and its nodules is associated with intussusception of the intestine, a condition not associated with these parasites in this country. Perhaps this condition was more common in the earlier period of this country when the nodular worm and nodular disease were not yet recognized, and has disappeared as our sheep have begun to develop a greater tolerance for this parasite. In this case, the condition might be expected to disappear from South African sheep sooner or later for the same reason. Undoubtedly this worm is normally a parasite of some American ruminant. In sheep the nodule becomes very large as a result of bacterial complications, whereas in most animals the nodules caused by worms of the genus *Oesophagostomum* do not produce large lesions or show extensive bacterial complications. Here again it may be assumed that the worm has an increased pathogenicity in a new and unusual host, and probably does not produce such lesions in its normal native American host or hosts. As a matter of fact, one verbal report has come to me of this parasite being found in a wild American sheep and not being accompanied by nodules; I have not seen the specimens.

Sheep and cattle also show a number of small trichostrongyles, such as *Ostertagia bullosa, Ostertagia occidentalis* and *Cooperia bisonis,* which have never been found outside of North America and which evidently represent parasites of native ruminants occurring in sheep or cattle. One of these, *C. bisonis,* was first described as occurring in the bison and was subsequently found in cattle; another, *O. bullosa,* was first described in sheep and subsequently was found in the prong-horned antelope.

It has been noted for many years that man, solipeds and rodents had pinworms but that ruminants did not. In the last two or three years a pinworm, *Skrjabininema ovis,* has been reported from sheep in Russia and in the United States. It seems unlikely that this was previously overlooked; more likely it is a parasite of some other host, perhaps a rodent, which is in the process of adapting itself to sheep.

While this does not exhaust the subject of parasites of native American animals adapting themselves to domesticated animals and becoming in some cases parasites of major importance by virtue of their pathogenicity, economic damage and widespread occurrence, it is sufficient to illustrate the point that this transition does occur and is still occurring.

TRANSFERS OF PARASITES OF LOWER ANIMALS TO MAN

An inspection of a small sample list of the parasites of lower animals occurring in man indicates that man has taken over certain parasites from primates, carnivores, ungulates, rodents and fish. The list is as follows:

Primate Parasites.—Bertiella mucronata is a tapeworm which has been found in man once; it has also been reported as having been found in monkeys, and is evidently a normal parasite of these animals. *Bertiella satyri,* another tapeworm of monkeys, has been found in man in a few cases. The life history of these worms is unknown, so we are ignorant as to how a person might become infested.

Ternidens deminutus is a nematode occurring in monkeys and in man in Africa. It is evidently a monkey parasite which has adapted itself to man as a host.

Ancylostoma braziliense is a hookworm which has already been referred to as occurring in dogs but as probably a normal parasite of wild carnivores. In all probability its transfer to man followed from its transfer to his dogs, as a result of his close association with his dogs. It appears to be still rather poorly adapted to man as a host. In Nicaragua this worm is found associated with *Necator americanus,* but the incidence of the former is much lower and the number of worms present much smaller than in the case of the latter. Moreover, there is still some question as to the ability of *A. braziliense* to infect man through the channel of skin penetration or at least to do so in any large proportion of cases of skin infection. The excellent studies of White, Dove and Kirby-Smith have shown that the larvae of this hookworm are responsible for most of the cases of "creeping eruption" in Florida and other Southern states, and the history of these cases indicates that when the worm enters the human skin it wanders about extensively in the skin,

producing the lesions designated as "creeping eruption," instead of promptly entering the circulation and making its way to the digestive tract by way of the respiratory system, as hookworms do when they enter their normal host by way of the skin. While this matter of the development of *A. braziliense* in man has been inadequately investigated, one would be inclined to think from the present evidence that the worm developed to maturity in the digestive tract only when the larvae were swallowed.

Another roundworm of the dog, *Toxocara canis,* has been reported a number of times as occurring in man, usually in children. Children are more frequently infested with dog parasites than are adults because of the closer association of children and dogs and the more habitual disregard for cleanliness on the part of children. The worm has a simple direct mode of infestation by means of embryonated eggs, and the occurrence of the worm points to coprophagy, usually unconscious, as the source of the infestation, the person having swallowed worm eggs which originated in dog feces.

Another dog parasite, a tapeworm, *Dipylidium caninum,* has also been reported in a number of cases in man, usually in children. This tapeworm uses the dog flea and the biting louse of the dog as intermediate hosts, and the occurrence of the tapeworm in human beings indicates that these persons have swallowed dog fleas or lice infested with the cysticercoids of this tapeworm.

A serious parasite, capable of killing its host, is the hydatid *Echinococcus granulosus.* This tapeworm occurs in the small intestine of the dog and some wild carnivores as a small strobilate worm, and occurs as a hydatid, or larva, in various tissues of its numerous secondary host species, of which man is one. Here again infestation with the hydatid follows from coprophagy.

Rodent Parasites.—The dwarf tapeworm, *Hymenolepis nana,* is the commonest tapeworm of man in the United States. It is morphologically identical with a rat tapeworm and there have been a number of investigations to ascertain whether the two forms are biologically identical and susceptible of transmission from man to rat and rat to man, as well as from rat to rat and man to man, this tapeworm being the outstanding exception to the rule that tapeworms have an alternation of hosts. It does have an alternation of generations, passing alternately from the strobilate form to the cysticercoid form and back to the strobilate form; but it utilizes the same host for the two stages, developing to a cysticercoid in an intestinal villus, going to the lumen of the intestine and becoming a strobilate tapeworm, and producing eggs which in turn infect the next host by coprophagy. The investigations indicate at present that although there may be more difficulty in infecting one host species with a tapeworm strain from the other host species, nevertheless transmission from one host to the other is possible and the human and rat strains may be regarded as identical.

Another rat tapeworm, *Hymenolepis diminuta,* occurs in man, but much more rarely than *H. nana.* This species utilizes insects belonging to a number of groups as intermediate hosts, and infestation with this tapeworm points to the swallowing of some of these insects. It is probable that infestation occurs as a result of the presence of these insects in breakfast foods and other foods which are eaten with little or no cooking, perhaps hastily or in poorly lighted rooms, by persons living in rat-infested houses, and the worm is probably an indicator of poor sanitation and poor economic status in connection with the patient, just as hookworms are.

Swine Parasites.—The highly important and deadly *Trichinella spiralis,* the cause of trichinosis, is a parasite which man shares with the pig and the rat, and to some extent with the cat and other animals. It has an unusual life history in that infection with the larvae leads not only to infestation with adult worms but also to infestation with the larval worms in the same host. If there ever was a cannibalistic period in man's history when this worm could have been a normal human parasite transmitted from man to man directly, that time was long ago, and now the occurrence of the parasite in man depends on his eating raw or undercooked pork containing the larvae.

The armed tapeworm of man, *Taenia solium,* develops from *Cysticercus cellulosae* in pork eaten raw or improperly cooked. It will be referred to later.

Ruminant Parasites.—The common sheep and cattle liver fluke, *Fasciola hepatica,* has been found and reported in man a number of times. On the basis of the life history as it had been worked out this was not easily understood, as the infective fluke larva, the cercaria, was thought to encyst always on vegetation. Sinitsin's work showed that the encysted cercariae floated on the surface of water and might or might not attach to vegetation, and it is easy to understand how drinking water containing these floating cercariae might lead to human infestations. One of the Russian workers has recently made an interesting report in connection with the occurrence of this fluke in man. Surveys of parasites of man and other animals in Russia had indicated that there was an astonishingly high incidence of this fluke in Russians. The report in question brought out the fact that these cases were mostly due to the eating of flukey livers with the subsequent passage of the fluke eggs through the digestive tract and their discovery in the course of fecal examinations. This parallels the observation of Thompson that a number of supposed cases of coccidiosis in man were due to the eating of smoked fish containing a fish coccidian, with the subsequent finding of these coccidia on fecal examination. It also parallels Sandground's observation that the eggs on which the species *Oxyuris incognita* was based are actually the eggs of the plant nematode *Heterodera radicicola* eaten with infested vegetables and passing through the digestive tract. All these cases illustrate one of the important pitfalls in parasitology, the case of the spurious parasite.

The unarmed tapeworm of man, *Taenia saginata,* which develops from *Cysticercus bovis* in beef eaten raw or inadequately cooked, need only be mentioned here as it will be referred to later.

In the last ten or fifteen years a number of the trichostrongyle parasites of ruminants have been reported as occurring in man, these parasites including *Haemonchus contortus* (the sheep stomach worm) and *Trichostrongylus instabilis* and *T. vitrinus* (common nematodes of sheep and cattle). In these cases the life history is simple, and infestation follows from swallowing the infective third-stage larvae. While these larvae might be swallowed in drinking water, there is a strong possibility that the larvae might be blown about in the wind and be carried into food in this manner.

A somewhat rare parasite of man is the gapeworm. One case of human infestation with this worm was

reported by Leiper, who called the worm *Syngamus kingi*. A second case was reported by St. John, Simmons and Gardner, who did not attempt to name the species. There is some likelihood that both these cases are instances of the occurrence of the cattle gapeworm, *Syngamus laryngeus*, in man. This worm probably has a simple life history, but the facts have not yet been ascertained. The chicken and turkey gapeworm, *Syngamus trachea*, is capable of developing directly from the infective egg but also appears to be able to utilize earthworms as intermediate hosts and seems to be able to survive much longer in earthworms than under ordinary conditions in soil.

Fish Parasites.—The most important parasite which man gets from eating fish is the broad fish tapeworm, *Diphyllobothrium latum*. The life history involves the successive use of copepods, fish and the primary host (man, dog and others). Raw or improperly cooked fish constitute the source of infestation for man.

In the foregoing selection of parasites that occur both in man and in the lower animals there are cases of accidental parasites of rare occurrence in man and common occurrence in animals, some of these parasites being apparently still in the process of adaptation to man as a host, and cases of parasitism in which man is one of the customary links in a life cycle involving the lower animals as hosts for the intermediate stages. Infestation in man follows from coprophagy or entomophagy (the eating of insects, voluntarily or involuntarily), or lack of sanitation in some respect, or from the eating of infested meat that is improperly cooked. Sanitation, personal cleanliness, the proper cooking of food, and other measures have been preached for the protection of man, and meat inspection has been instituted.

TRANSFER OF PARASITES OF MAN TO THE LOWER ANIMALS

It now seems to be in order to present the other side of this picture. Much has been said about protecting man from his own bad habits and from his pet dog, but little has been said about protecting livestock from the parasites which live stock acquire because of man's bad habits. The best illustration of parasites adapting themselves to live stock, and of live stock acquiring parasites because of the fault of the human animal, is found among the swine parasites, partly because the food habits of swine and the nature of their digestive tract are not entirely dissimilar to those of man, and partly because swine are frequently kept close to the house, if not actually in it, and less often are ranged on the pasture, as sheep and cattle usually are.

The first of these parasites to be considered is the swine ascarid, *Ascaris suum*. Morphologically this worm cannot be distinguished from the human ascarid, *Ascaris lumbricoides*, and from this point of view they are identical. However, it is interesting to note that heavy infestations and a high incidence of this parasite among swine are peculiar to infancy, occurring up to about the fourth month of age; older animals show a low incidence and usually light infestations. It is further true that attempts to produce infestation in swine by feeding embryonated ascarid eggs have quite generally failed to lead to the development of adult worms in the intestine, and success in this respect seems to have been achieved by a Japanese worker, who after four years' work found that when the swine were kept on a vitamin-deficient diet he was able to produce infestation.

On the other hand, it has been found that in communities where man is infested with ascarids the incidence is often just about the same for all age groups, and heavy infestations are common in adults as well as in children. Koino found that when he swallowed the infective eggs of the human ascarid a large percentage of them developed to adult worms in the intestine, showing that infestation was easily accomplished with this worm in man.

On the basis of what is known about the behavior of parasites in general, one can only conclude that the human ascarid is a normal parasite of man, readily capable of infecting him at all ages and of producing heavy infestations at all ages; whereas one must also conclude that the swine ascarid is a parasite not as yet well adapted to an existence in pigs, capable of developing with any certainty only in animals on a deficient diet, and ordinarily incapable of infecting most mature animals or of causing in such animals more than a light infestation. Since the two parasites are morphologically identical, it must be concluded that the swine ascarid is a strain of the original human ascarid which has become started in swine probably since man began the domestication of the pig and which has not yet become well adapted to the pig. Here we have a parasite moving down the scale from man to a lower animal as a result of bad associates, the swine having perforce been thrown into the company of man.

A somewhat similar case, and one of interest because it appears to be of recent occurrence, is the development of the swine hookworm, *Necator suillus*. This worm was reported by Ackert and Payne from Porto Rico and seems to have a restricted distribution. It is distinguishable by slight differences from the human hookworm, *Necator americanus*. In view of its restricted range, which range is one in association with *N. americanus*, its recent discovery, and its apparent absence from swine in other parts of the world, the evidence points decidedly to this worm as a strain of the human hookworm, *N. americanus*, which has developed in recent times in swine, perhaps because the resistance of the swine originally infested was broken down by improper or inadequate feeding or by some other adverse condition. At any rate, it seems probable that this is another case of a human parasite beginning to adapt itself to a domesticated animal as a host.

In the case of the two tapeworms *Taenia solium* and *T. saginata*, the problem is not one of human parasites per se occurring in live stock but of parasites that would not occur in swine and cattle if it were not for the carelessness and bad habits of human beings. This situation does not call for protecting the human animal any more loudly than it calls for protecting our live stock. It is all very well to ask for meat inspection to protect human beings from the consequences of eating raw or rare meat, but it seems much more in order to ask that live stock be protected from the ignorant or careless person who insists on defecating on the food of live stock. This is no academic matter from the standpoint of the stockman or from the standpoint of the consumer. Every year there are instances of an entire shipment of cattle coming to the slaughterhouse heavily infested with *Cysticercus bovis*, with resultant heavy condemnations of these carcasses. Sometimes they trace back to the apparent carelessness and bad habits of one person. These condemnations lose money for the packer, but the packer passes these losses on to the consumer. He has to do this or go out

of business. At the same time, the consumer should understand that he is paying for some person's foolishness. In other words, when one finds a patient with tapeworms it is not just a question whether he is injured by them; he is a menace to the stockman and farmer in that he threatens the welfare of their live stock. To be sure, the farmer and the stockman are among the worst offenders against their live stock, and in this connection I recall a farmer who has the prize demonstration for his state of swine raised under sanitary conditions but who has just recently installed a privy on his farm at the urgent insistence of a veterinarian.

Enough illustrations have been given to show that parasites are still widening their scope of action by adaptation to new hosts, which adaptation will presumably give rise or is giving rise to strains which are biologic species and which will in time be incapable or capable to only a limited extent of infesting the species which were hosts to the ancestral strain of the parasite. Work with plant-infesting nematodes has shown that when a species capable of infesting hundreds of plant species is grown in one kind of host plant for generation after generation it is difficult to transfer it back to one of the other species to which it was once well adapted.

The flow of new parasites has been shown to involve a flow from wild animals to domesticated ones, from domesticated animals to man, and from man to domesticated animals. Doubtless this extension to new hosts is going on among the lower animals to a greater or less extent, but we are less familiar with these cases. In the cases in man and the domesticated animals there are special conditions which deserve special consideration.

Compared with the long period before man appeared on the earth, his sojourn here has been a short one; and, short as it is, the length of time his domesticated animals have been domesticated is even shorter. However, man is an upsetting animal and in his short career has doubtless done much more to upset the trend of events in the realm of parasites than any other force had ever done in a much longer time. Outside of the influence man exerts, animals are restricted in their distribution by physical barriers, climatic conditions, limitations of food, and other things. Man has not allowed these restraining influences to restrain him to any great extent, nor has he allowed them to prevent the distribution of his domesticated animals over the earth. Consequently there are human beings almost everywhere, and there are horses, cattle, sheep, goats, swine, dogs and cats over all the continents, regardless of the barriers that would have restricted these animals to some limited area if man had not intervened. Under the circumstances man has been exposed to parasites of all sorts from the poles to the tropics, and such parasites as could adapt themselves to him have done so, are doing so, or will do so if given the chance. The long list of parasites known to occur in man is probably attributable not only to the fact that man has received more special study than other animals but also to the fact that he has exposed himself to more kinds of parasites and over a larger range than any other animal.

Man's live stock is a special case, as already noted, by virtue of the fact that it has gone over the world with man. It is even more of a special case now than it was when man was migrating about a comparatively unexplored world. Today his live stock moves in fast freight trains and motor trucks over thousands of miles in shipments of breeding stock, feeders, and consignments to market. In this way the parasites that might have taken a century to cross a continent by slow extension from continuity of infected and uninfected stock, or by movement on the hoof, are crossing in a week. I have seen poultry in Florida which was imported into that state from Oregon across the long diagonal of the country, doubtless bringing its parasites along with it. The result of all this is that our live stock parasites are spreading and increasing much faster than we are learning how to control them, and the field of veterinary parasitology promises to be a rich field of research for many years.

On the other hand, the human animal is a special case of another sort. He alone, of all animals, wears clothing, shoes and gloves. He alone shaves and uses depilatories. He alone builds houses of hard, smooth material which he cleans with a vacuum cleaner and scrubs with soap and innumerable soap substitutes. He alone cooks his food. He alone provides for the disposal of feces through a sewer. He alone bathes in hot water and at frequent intervals. Having wandered far and accumulated the largest collection of parasite species known for any one host animal, he has now become civilized and simultaneously a poor target for his unhappy parasites. His smooth skin, shaven and depilated, offers little foothold for ectoparasites, and his clothing, shoes and gloves protect him from most ectoparasites aside from "cooties," and from attack by skin-penetrating nematodes. The bedbug encounters increasing difficulties in maintaining itself against sanitary beds, smooth-walled houses, the vacuum cleaner, and the emergency attack of hydrocyanic acid gas. Sewage disposal prevents infestation with most worms that depend on coprophagy for their survival, and only such canny pests as the pinworm penetrate into and hold their own in select, intellectual and economically sound society. Perhaps this picture is a bit too rosy; I should say that man is capable of all this, and concede that in some places it is an unrealized potentiality, especially in the rural districts and the tropics. By and large there is still a good field in human parasitology; not so good or so large as in veterinary parasitology, but good enough.

Perhaps it would be better to make no distinction between human and veterinary parasitology; they are overlapping fields of the same subject. Enough has been said in this paper to show that parasites move up from their hosts among the lower animals to include man as a host, and move down from man to the lower animals, and that they shuffle back and forth among the vertebrates in general; if more were known about it, doubtless plenty of cases of shuffling among the invertebrates could be cited. The parasites do not remain stationary; they are adapting themselves to new hosts constantly and changing their characteristics to meet the demands in the newly occupied terrain. There is no reason to suppose that new parasites of man may not yet be developed which will be as serious as any known at present, just as in recent historical times new parasites of major economic importance have developed in domesticated animals by transfer from wild animals.

Such ideas make the subject of parasitology a fascinating one. Yet, in spite of its fascinating possibilities, parasitology is perhaps the most neglected subject in human or veterinary medicine in the United States. Physicians and veterinarians in general confess their ignorance of the subject, and the confession is safe

since it represents a fact and is a sound position in dealing with a subject in which ignorance is dangerous in more ways than one. In the past fifteen years there has been some progress in this matter, but much more attention should be paid to this subject if the physician and veterinarian are to act intelligently in dealing with cases of parasitism in their subjects. I have no hesitancy in saying that, ignorant as the veterinarian is of parasitology, he is nevertheless much better informed than the physician on this subject. He has need to be. His patients do not have the capacity for sanitation that human patients have; on the other hand, the human patient is so much more valuable that it would seem worth while for the medical schools to give more attention to the subject. When prophylaxis by sanitation or other means fails, treatment becomes necessary, and there are painfully few physicians who are qualified to administer the poisonous drugs which constitute the effective anthelmintics.

The veterinary parasitologist has learned much from the medical men who have contributed to the subject of parasitology, from Manson, Ross, Smith, Carroll, Reed, and many others. The medical parasitologist has learned something from the veterinarians who have contributed to the subject. Both have learned from the zoologist. Both could cooperate to advantage and they often do, but there is in the United States too little cooperation between the physician and the veterinarian. It is interesting that such outstanding physicians as Osler, Welsh and Hektoen have taken a keen interest in veterinary medicine. Osler was lecturer in parasitology at the Ontario Veterinary College and never lost his interest in parasitology or veterinary medicine. I had the pleasure of dedicating to Osler a new genus for a species of nematode worm which he described, and in reading Cushing's life of Osler I found that the reference to this worm was but one of forty-seven references to parasites, and that these were associated with twenty references to veterinary medicine. If the present paper can accomplish but one thing, and that an awakening of physicians and veterinarians to the fact that all are engaged in studying the same subject and that we could learn from each other to our great advantage, and if we can gain from it just a bit of the cooperation which should exist and some time will exist in this country, as it does between the two professions in other countries much more extensively than here, something of great value to both professions will have been effected.

The Food of Wellington's Soldiers.—A modern provision shop is filled with packets and tins branded by a factory. We do not know what has been added to or taken away from our food. Mummified preparations are vividly dyed to simulate the green freshness of plants, the red or yellow of fruit juices, the golden color of butter and eggs. Cereal foods have suffered most severely since the introduction of machine milling about 1870. Formerly the staple cereal of the East, rice, was pounded by hand and in this country our wheat was coarsely stone-ground at the local mill and only part of its bran removed. Wellington's soldiers were famous for their fine figures and good looks, yet the food they ate would be scorned nowadays. They received one pound of wheat per day. They ate the whole grain as it was issued, or if time allowed they pounded it up and made a coarse bread. They were allowed a few ounces of wholemeal flour weekly. During the Peninsular War they were dependent for their meat supply upon any goats they might chance to catch in the mountains. What a contrast to the white flour and tinned meat and vegetable ration of modern armies on active service.—Plimmer, R. H. A., and Plimmer, Violet G.: Food, Health, Vitamins, New York, Longmans, Green & Co., 1929, p. 4.

AMBULATORY LIGATION OF THE SAPHENOUS VEIN *

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Ligation of the saphenous vein, frequently referred to as the Trendelenburg operation,[1] has been recommended for the treatment of varicose veins. It was based on the principle that reflux of blood into the saphenous vein could be stopped with a simple high ligature. Uncertain results and recurrence [2] in a high proportion of cases (from 22 to 72 per cent) led to the adoption of more radical methods, such as stripping, multiple ligatures and radical excision. The simple ligation has fallen into discard except when combined with more radical procedures.

The injection treatment of varicose veins, described in previous communications,[3] has aroused interest in ambulatory forms of treatment. As described in my previous work, the ligation of the saphenous vein has been combined with the injection treatment in a certain group of cases. Tavel [4] and Schiassi,[4] using phenol and compound solution of iodine in the early years of this century, ligated the saphenous vein above the injected area. More recently, Moszkovicz [5] ligated the saphenous vein and injected large quantities of dextrose into the peripheral stump to produce a massive thrombosis of the long saphenous vein.

The purpose of this study was to determine the indications and immediate and late results of ligating the saphenous vein, when combined with the injection treatment. It is based on fifty operations performed in the surgical dispensary of Northwestern University Medical School or at the Wesley Memorial Hospital.

Obviously, this operation is not indicated in every patient with, and treated for, varicose veins. If the greater saphenous vein is dilated only below the knee, and the course of the vein is not visible or palpable above the knee, when full weight is exerted on the extremity, one must assume that the saphenous valves above the knee are competent. In such patients the Trendelenburg test does not reveal insufficient valves in the long saphenous vein. The ligation here would be unnecessary (*a* in the accompanying illustration). On the other hand, it is possible for all valves to be incompetent, both in the saphenous and in the communicating veins. The Trendelenburg test is doubly positive. The varicose veins fill up suddenly from above in spite of saphenous compression, but a further increase in size is observed when the compression is released. The ligature of the vein on the thigh would only partially relieve back pressure (*b*). It would only slightly diminish venous pressure and might even favor the dilatation of other tributaries.

The indication for saphenous ligature is clearly given when, after elevation of the limb and compression of the saphenous vein, no filling of the varices is encountered in the standing position. When the pressure is relieved,

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1. Trendelenburg, F.: Ueber die Unterbindung der Vena saphena magna bei Unterschenkelvarizen, Beitr. z. klin. Chir. **7**: 195-210, 1891.
2. Bier, A.; Braun, H., and Kümmel, H.: Chirurgische Operationslehre, Leipzig, J. A. Barth **5**: 334, 1917.
3. De Takáts, Géza: Varicose Veins and Their Sequelae, J. A. M. A. **92**: 775-782 (March 9) 1929. De Takáts, Géza; and Quint, Harold: The Injection Treatment of Varicose Veins, Surg. Gynec. Obst. **50**: 545-561 (March) 1930.
4. Cited by Sicard, Jacques; and Gaugier, L.: Le traitement des varices par la méthode locale sclérosante, Paris, Masson & Cie, 1927.
5. Moszkovicz, Ludwig: Behandlung der Krampfadern mit Zuckerinjektionen kombiniert mit Venenligatur, Zentralbl. f. Chir. **54**: 1732-1736 (July 9) 1927.

the blood suddenly shoots into the collapsed saphenous dilatations. The Trendelenburg test is positive. The ligature will result in a sudden diminution of venous pressure, as reported elsewhere.[6] It should, however, be placed under the protection of the last competent valve; otherwise the same complication as illustrated in *b* will develop (*c*).

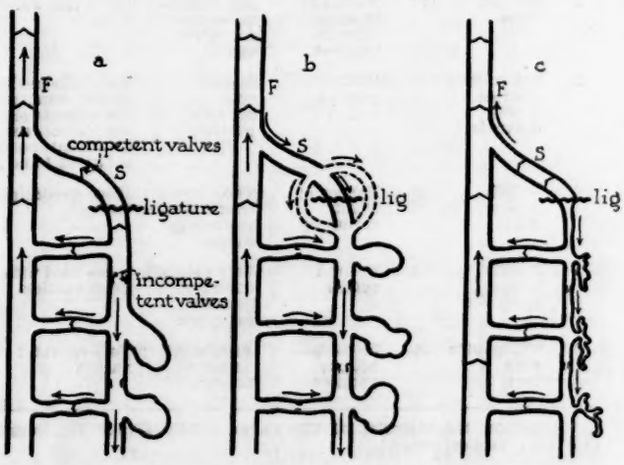
The rationale for performing a ligation previous to the injections has been explained in a previous paper.[7] In the first place, it reduces venous pressure in the valveless vein and protects the thrombus formed after the injection from recanalizing. The pressure in the varicose vein on standing has been found to be as high as 210 cm. of water.[6] In a group of recurrences encountered among 500 cases treated by injection, the refilling of the firmly obliterated vein has been encountered in ten such cases in which the saphenous vein was not obstructed above the injections and yet showed a marked reversed flow on standing. It is true that such veins could be injected higher up, close to the saphenofemoral junction. But there are two serious objections to such a procedure. First, it is sometimes impossible to see or even palpate the saphenous trunk high up on the thigh, owing to the overlying fatty tissue. Second, the injection may result in voluminous thrombi, whose proximity to the femoral vein is undesirable. It has been stated that saphenous thrombosis usually stops at the saphenofemoral junction. However, the chances of such a thrombus breaking loose and being sucked up into the iliac vein are not remote.

The advantage, then, of the ligation lies in creating a barrier, which prevents an ascending thrombosis. It is impossible to foretell the length of the thrombus following an injection. I have seen two cases in consultation in which the injections were done by reputable physicians around or just above the knee in the presence of a dilated valveless saphenous trunk. A marked phlebitis and periphlebitis followed, with the development of a large inflammatory mass just below Poupart's ligament. There was a rise in temperature for several days. The severe pain required immobilization. While both patients recovered fully without further untoward reactions, the danger of pulmonary embolism from such infected loose thrombi close to the saphenofemoral junction is not negligible. It must be remembered that latent, clinically not recognizable infection may be harbored in many dilated veins, and that a flare-up of such a latent phlebitis with the production of a massive periphlebitic exudate is not comparable to the firm, rapidly organizing aseptic thrombus described in a previous communication.[8] That such a latent infection in or around the wall of the vein is not uncommon will be demonstrated during the analysis of our results.

A further advantage of the ligation is that it materially reduces the length of treatment. The injections into the collapsed veins below the ligature are more effective and obliterate longer segments. In some cases the ligation alone accomplishes a massive obliteration of the distal segment of the vein, requiring no further injections.

TECHNIC OF LIGATION

The patient need not be admitted to the hospital, and no premedication is required. In the standing position with full weight on the affected extremity, the long saphenous trunk is palpated as high as possible. Just above the point at which the palpable trunk suddenly disappears to the touch, the skin is painted with a 2 per cent aqueous solution of brilliant green. I usually draw a short longitudinal and a short transverse line in the form of a cross. With the help of these markings, the length of the skin incision is greatly reduced. Next a 0.5 per cent solution of procaine hydrochloride with three drops of a 1 : 1,000 solution of epinephrine to each ounce is infiltrated along the transverse line of brilliant green, approximately 1 cc. of procaine being used to every centimeter of the skin incision.[9] Overinfiltration of the tissues is unnecessary and may cause persistent induration. Great care must be exercised not to inject any procaine intravenously. Because of the multiple tortuous veins, which may be close to or even adherent to the skin, it is sometimes advisable to infiltrate intradermally and proceed with a subcutaneous infiltration only after the skin is incised. The skin incision is transverse to the course of the vein and should be as short as possible. Incisions from 3 to 5 cm. long are



In the illustration, *F* indicates the femoral vein, *S* the saphenous vein: *a*, the valves in the long saphenous vein above the knee are competent. The vein is not dilated or hypertrophic. It is not palpable in the standing position. When the patient's leg is elevated, the varicosities empty and do not fill up suddenly when the patient stands. Ligation in such a case is unnecessary. *b*, the valves in the long saphenous vein above the knee are incompetent. The vein is first hypertrophic (on palpation) and then dilates. When the patient's leg is elevated, the varices empty and fill suddenly when the patient stands, in spite of compression from the communicating veins. However, when the pressure is released, further increase in dilatation takes place. Ligation in such a case does not prevent reflux from the deep veins. On the contrary, if the ligature is placed distally to an incompetent valve, it will favor the appearance of new dilatations, an attempt of collateral circulation. Ligation in such a case is not indicated. Only a radical removal of all incompetent communications with a ligation at the saphenofemoral junction can be successful. *c*, the valves in the long saphenous vein above the knee are incompetent. The vein is distinctly palpable as a solid cord, sometimes as high as the saphenofemoral juncture, mostly, however, at a lower level. As the communicating valves are competent, the ligature below the last competent valve will result in a marked diminution in the size of the veins. After the veins have been injected, the thrombi are protected from further back pressure.

usually sufficient. The vein is bluntly isolated and two number 1 chromic catgut ligatures are passed and tied around it. The vein should not be clamped to avoid injury to the endothelium. The distance between the two ligatures should be large enough to permit the removal of a small segment of the vein for histologic or bacteriologic study. Small bleeders are tied with 00 or 000 catgut, and two or three interrupted dermal sutures close the skin. A small pad of sterile gauze is pasted to the skin with a glue made from a 40 per cent solution of gum mastic in benzene or ether with a few drops of castor oil. A wide strip of adhesive tape over the sterile gauze provides further protection and pressure. The patient may immediately dress and go home. He may even be permitted to leave the city in

6. De Takáts, Géza; Quint, Harold; Tillotson, C. T., and Crittenden, Phoebe, J.: The Impairment of Circulation in the Varicose Extremity, Arch. Surg. **18**: 671-686 (Feb.) 1929.
7. De Takáts and Quint (footnote 3).
8. De Takáts (footnote 3).
9. De Takáts, Géza: A Short Course in Local Anesthesia, Philadelphia, W. B. Saunders Company, 1928.

order to return home. For postoperative pain, 5 grains (0.3 Gm.) of amidopyrine is ordered two hours after the operation in the evening and next morning. There is surprisingly little discomfort. The patients are instructed to elevate and bandage the limb in case of hemorrhage. Their activities are not restricted, except by discomfort. If there is any soreness after two days they come in to have the wound inspected; otherwise they report in a week to have the stitches removed. If there is no contraindication, the injections may then be started (table 1).

TABLE 1.—*Type and Amount of Solutions Used for Injecting Varicose Veins* *

Number	Solution	Maximal Amount, Cc.	Advantages	Disadvantages	Indications
1	15-20% sodium chloride	10	Nontoxic; prompt action	Marked cramping; danger of necrosis	Large indurated veins; preferably combined with dextrose
2	50% dextrose	10	Nontoxic; no slough; little discomfort	Not irritating enough for larger veins	Small thin-walled veins
3	30% sodium chloride + 50% dextrose	10	Nontoxic; prompt action	Marked cramp; necrosis possible	Most universally useful; combines the advantages and reduces the disadvantages of solutions 1 and 2
4	50-75% invert sugar	10	Nontoxic; slight cramping	Too viscous; causes marked perivenous edema	Have discontinued its use
5	20-40% sodium salicylate	5	Prompt action	Very painful; danger of necrosis; salicylism	To be used with great caution
6	10% quinine with urethane	2	Prompt action; painless	Painful later; danger of necrosis	Very resistant varices

* Based on the material of the Varicose Vein Clinic, Northwestern University Medical School.

Table 2 gives a summary of the operations performed.

TABLE 2.—*Summary of Operations Performed*

Number of ambulatory ligations	50
Procaine reaction	1
Wound infection *	3
Descending massive thrombosis	10
Ascending thrombosis	..
Palpable clot in the proximal stump	2
Average number of necessary injections following ligation (46 patients)	6
Average number of injections, when ligation was refused (4 patients)	21

* Since the use of the mastic gum paste dressings, which prevent secondary infections in the ambulatory patient, no further infections were encountered.

In one case, less than 0.5 cc. of procaine must have been injected intravenously. Aspiration of blood in the syringe was immediately followed by complete withdrawal of the needle and digital compression proximal to the site of injection. Almost immediately the patient became pale, the pulse rapid and the lips numb. The reaction subsided within a few minutes. There was an induration around the incision in two cases which was interpreted as a hematoma. It absorbed without any consequences. A mild infection of the wound occurred in three cases. The source of these infections is not clear. Aside from a break in surgical asepsis, the infection may have been due to a latent phlebitis and periphlebitis, which flared up after the ligature. This occurs as a descending phlebitis following operation. The patients may be quite alarmed over the sudden red discoloration and marked edema along the course of the dilated trunk distal to the ligature. In my experience, however, these patients need not be immobilized, and may pursue their daily duties with an elastic support, which quickly alleviates the pain. In five cases, no further injections became necessary after the operation. The distal segment of the vein became obstructed with a massive thrombus, surrounded by a marked periphlebitis. The edema rapidly disappears but may leave a dark brown discoloration, well known in old phlebitic patches.

In the other five cases it was found that only a partial obliteration took place, or that after the absorption of the perivenous edema the vein did not become thrombosed. In such cases one must assume that the ligature had obstructed the chronically inflamed lymphatics and precipitated a perivenous lymphangitis. After the acute symptoms subsided, there was no contraindication to the injection treatment, as the ligature above would safeguard the patient from a too high extension of the phlebitis. This postoperative phlebitis never progressed to an abscess formation.

Another source of infection in the wound might be a secondary infection of the aseptic incision, delaying the course of healing. These patients keep on working and perspire, and are unable to take a bath after the operation. It was not uncommon to see soiled dressings, which loosen and do not offer an air-tight protection in ambulatory patients. The use of gum mastic glue results in a firm adherence of the gauze to the skin and prevents external contamination. All three cases of wound infection occurred before the use of the paste. None of the infections were serious enough to warrant hospitalization and cleared up after a few antiseptic dressings.

I was particularly interested in the formation of a palpable clot in the proximal stump. It has been stated that a high ligation of the saphenous vein might become more dangerous than an injection at the same level, as the ligature thrombus is less adherent and may break loose more readily. In two cases thrombi were palpable in the proximal stump, and small thrombi were probably present in many more cases. In not one case, however, did I encounter an ascending thrombosis, in marked contrast with the incidence of the descending thrombosis. I feel that, with the placing of the ligature, the formation of the thrombus is limited to that area or distally to it, whereas the thrombus following injection has been seen to ascend as far as Poupart's ligament before the ligations were instituted.

FOLLOW-UP RECORDS

The first question to be solved was whether a venous dilatation would occur above the ligature. This might be expected, because the ligation was being done at the highest palpable point, and not at the saphenofemoral junction. Theoretically, the ligature should be placed just below the last competent valve (*c*). Observance of this rule led to the result that no proximal dilatations were encountered. This is worth emphasizing, since, following injection treatment below the knee, the long saphenous vein sometimes becomes visible or palpable higher up, as if the reversed and distally obstructed flow of blood would increase venous pressure in higher segments.

The second question related to the incidence of recurrences after the combined treatment of ligation following injections. Elsewhere, Quint and I [3] have reported a total of 10.4 per cent recurrences following the injection treatment of varicose veins. In the fifty cases treated with ligation and injections, there was one case

in which reinjections had to be done. This case showed a moderate reflux from the deep veins, and hence belongs to the type of veins that should preferably be excised. In view of the large percentage of recurrences with other methods, either surgical or the injection treatment, I feel that these results are extremely promising. The observations extend to three years, although most cases have not been observed longer than one year. A reexamination after five years should be of even more value.

COMMENT

The ligature of the long saphenous vein below the last protecting valve, followed by injections, is not a new procedure. I have put the method to a test on a larger scale in the ambulatory patient, and believe that the saving of hospital days and of economic efficiency is considerable. One patient, an intern at the hospital, did not miss one day following the ligation. A number of patients drove their cars home to the suburbs following the operation and came back two days later for inspection. Others performed heavy manual labor during the week following the operation. Only two patients, highly nervous women, were hospitalized for twenty-four hours to give them mental ease. Generally speaking, the patients were told to rest and stay indoors for the first twenty-four hours. Immobilization in bed was carefully avoided. I believe that the real danger of embolism following vein ligation is to be considered if the patient is immobilized and the leg elevated. The stasis in the femoral and iliac veins, as described by Aschoff,[10] is at least partly responsible for partial or total emboli following operation. In Berntsen's [11] statistics the simple vein ligation, evidently followed by a considerable period of rest in bed, resulted in 0.7 per cent of fatal pulmonary embolism. While I do not deny the possibility of embolism following the ambulatory ligation, I do believe that the factor of muscular splinting, which plays such a conspicuous part in embolisms occurring after fractures of the thigh or ventral hernia, is absent in such patients. The fact that saphenous thrombi are a negligible cause of pulmonary embolism [12] speaks for the relative harmlessness of saphenous thrombi as compared with thrombi in the femoral or pelvic veins.

On an average, patients undergoing a preliminary ligation needed only three further treatments, or six injections. This is in marked contrast with the number of injections that had to be given to patients who refused ligation. There were four such patients, and the average number of injections was twenty-one. All four later came to ligation, after which two more injections were necessary on the average. The only instance of recurrence observed in this series was in a patient who had had multiple operations elsewhere and who showed marked reflux from the deep veins, a finding which really does not promise results from a ligation-injection treatment. Reinjection was done in this case and there has been no further recurrence up to the present time. However, it illustrates the soundness of performing radical operations in patients who show a definite reflux from the deep veins.

SUMMARY

Ambulatory ligations of the saphenous vein are indicated in a small but well defined group of cases in which the saphenous trunk above the knee is dilated and shows marked reflux from above. If the main reflux is from the deep communicating veins, the operation is obviously useless. The operation not only reduces venous pressure but serves as a barrier to ascending thrombi caused by later injections. Furthermore, it greatly reduces the number of necessary injections below the ligation. In some cases the entire trunk below the ligature becomes thrombosed and no further injections are necessary. In the group of fifty patients so treated, no patient was immobilized for longer than twenty-four hours and many of them continued work. Aside from the economic advantage, the danger of embolism is minimized by the ambulatory procedure. In this series all patients were free from recurrence for more than a year, if the operative indication was correct.

122 South Michigan Avenue.

10. Aschoff, Ludwig: Lectures in Pathology, New York, Paul B. Hoeber, 1924.
11. Berntsen, Aage: Des varices du membre inférieur, specialement au pointe de vue de l'etiologie et du traitement chirurgical, Acta. chir. scandinav. **62**: 61-85, 1927.
12. Brown, G. E.: Postoperative Phlebitis: A Clinical Study, Arch. Surg. **15**: 245-253 (Aug.) 1927.

THE FEMALE SEX HORMONE

XI. UTILIZATION OF THE HORMONE IN THE NORMAL WOMAN: EFFECT OF ABNORMAL KIDNEY PERMEABILITY IN THE PRODUCTION OF AMENORRHEA AND STERILITY *

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The female sex principle has been isolated from the lowest plants (yeast [1]) as well as from the ovary of higher plants.[2] In animals it can be extracted from various portions of the organism, especially the ovarian follicle,[3] the corpus luteum and the placenta.[4] It occurs also in the blood, bile and urine. This female sex principle is essential for reproduction because it produces the changes noted in the infertile (estrous,[5] menstrual) as well as in the fertile sex cycle (pregnancy [6]).

UTILIZATION OF THE HORMONE

Since 1913,[7] it has been proved that the female sex hormone, in sufficient concentration, produces effects on the genital tract of female animals. These effects manifest themselves in the form of congestion, hyperplasia and changes corresponding to those found in a given species at the time of estrus or premenstruation. In castrated primates these changes are plainly manifested and, on abrupt withdrawal of the hormonic stimulation, menstruation sets in.[8]

No information is at hand as to the local mode of action of the hormone. It is not known whether the

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1. Fellner, O. O.: Ueber die Wirkung des Placentar und Hodenlipoids auf die männlichen und weiblichen Sexualorgane, Arch. f. d. ges. Physiol. **189**: 199, 1921.
2. Loewe, S.; Lange, F., and Spohr, E.: Ueber weibliche Sexualhormone (Thelytropine): XII, Biochem. Ztschr. **180**: 1, 1927.
3. Frank, R. T.: The Ovary and the Endocrinologist, J. A. M. A. **78**: 181 (Jan. 21) 1922.
4. Iscovesco, H.: Le lipoïde utéro-stimulant de l'ovaire: Propriétés physiologiques, Compt. rend. Soc. de biol. **72**: 858, 1912.
5. Fellner, O. O.: Experimentelle erzeugte Wachstumsveränderungen am weiblichen Genitale der Kaninchen, Zentralbl. f. allg. Path. **23**: 673, 1912. Allen, Edgar; and Doisy, E. A.: An Ovarian Hormone: Preliminary Report on Its Localization, Extraction and Partial Purification, and Action in Test Animals, J. A. M. A. **81**: 819 (Sept. 8) 1923.
6. Frank, R. T.: Function of the Ovary—A Résumé: Fifth Paper, Am. J. Obst. & Gynec. **12**: 585 (Oct.) 1926.
7. Aschner, B.: Ueber brunstartige Erscheinungen (Hyperämie und Hämorrhagie am weiblichen Genitale) nach subkutaner Injektion von Ovarial oder Plazentarextrakte, Arch. f. Gynäk. **99**: 534, 1913. Fellner, O. O.: Experimentelle Untersuchungen über die Wirkung von Gewebsextrakten aus der Plazenta und den weiblichen Sexualorganen, ibid. **100**: 641, 1913.
8. Allen, Edgar: The Menstrual Cycle of the Monkey, Macacus Rhesus, etc., Contributions to Embryology, Carnegie Institution, Washington, D. C. **98**: 1, 1927. Corner, G. W.: Ovulation and Menstruation in Macacus Rhesus, ibid. **15**: 75, 1923.

hormone is "fixed," used up, or destroyed. We[9] have demonstrated that the female sex hormone occurs in five times greater concentration in the menstrual blood than in the circulating blood or in blood obtained by puncturing the cervix. This proves that at least concentration of the active substance takes place in the uterine mucosa.

EXCRETION OF THE HORMONE

Loewe and Lange[10] demonstrated in 1926 that the female sex hormone is excreted in the urine of normal women. These investigations are difficult and time consuming. Our main efforts have been focused on correlating the blood and urinary observations with the hope of substituting examination of the urine for the blood test. Our expectations have been crowned with a considerable degree of success. It has become apparent, however, that the blood test is more delicate and changes are more rapidly recognized from examination of the blood than from the urinary tests.

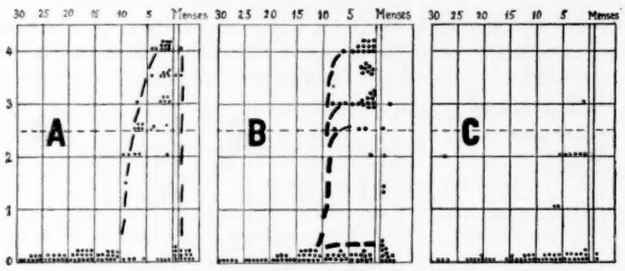

Chart 1.—The amount of female sex hormone in the venous blood. Each dot represents one blood test based on 40 cc. of vein blood. Anything below 2+ (the broken horizontal line) signifies absence of mouse reaction. Anything above this line signifies the intensity of the positive reaction obtained in a castrated mouse. *A*, strictly normal women; *B*, women with cyclic menstruation suffering from various gynecologic ailments; *C*, menstruating sterile women. (From Frank, R. T.: The Female Sex Hormone, Springfied, Ill., Charles C. Thomas, 1929.)

STUDIES OF THE BLOOD

Normal Menstruating Women.—Studies performed on the blood of a large number of normal and regularly menstruating women in the prime of life, by means of our blood study,[11] shows an overwhelming majority in whom a considerable accumulation of the female sex hormone occurs in the blood within the ten day period preceding menstruation, followed by an abrupt disappearance of this hormone concentration immediately before or with the onset of the menses (chart 1 *A*). In a second group of women who showed fairly regular menstruation but in whom various gynecologic ailments were present (especially functional disturbances), a considerable number failed to show the premenstrual rise of hormone in the circulating blood (chart 1 *B*).

Menstruating Sterile Women.—A smaller group of regularly menstruating sterile women, whose husbands were found potent and in whom no evidence of inflammatory diseases could be demonstrated, were carefully studied. In every instance, tubal patency had been demonstrated. Of twenty-nine tests of the blood obtained during the ten days preceding menstruation, only one proved positive (chart 1 *C*). A sharp contrast is noted between the group of normal women in whom thirty-two of forty-six tests, 69.5 per cent, proved positive during this period, and the group of those with functional sterility in whom only 3.4 per cent were positive.

Amenorrheic Women.—From our observations of a large group of clinically indistinguishable women suffering from amenorrhea, it has become apparent by means of the blood and urine test that two sharply separable divisions can be made. In the first, no cyclic accumulation of hormone in the blood can be demonstrated. In these, the course has proved unfavorable. In the second group, an accumulation of hormone in the blood can be demonstrated, the amount, however, being distinctly diminished (subthreshold), as illustrated in chart 2.

URINE STUDIES

Nonpregnant Women.—In the nonpregnant women, from 4 to 10 mouse units of female sex hormone can be recovered from the urine by our method in twenty-four hours, beginning approximately five days before the onset of the menses and reaching its acme immediately before menstruation.

In many amenorrheic women an excessive excretion of female sex hormone in the urine occurs either cyclically or continuously. A similar cyclic and excessive urinary excretion in the daily urine of the sterile women referred to was regularly noted (chart 3). This urinary excretion exceeds in quantity the small amount found at fairly fixed intervals in the urine of normal fertile women by Loewe and Lange,[10] and by ourselves,[9] and appears more continuously in these sterile women.

In all, 305 tests of the urine have now been performed. The test is in each case run in duplicate, what follows being the data of each individual specimen.

A 250 cc. portion of filtered urine is placed in a separating funnel and shaken with 150 cc. of ether for from one-half minute to one minute at a time over a period of ten minutes. Unless this precaution is taken, a marked foaming occurs. The ether fraction is poured off and a second extraction with 75 cc. of ether is performed.

The ethereal fractions are united and allowed to evaporate slowly at room temperature. The small residual sediment is taken up in 3 cc. of olive oil and is injected in quantities of 0.4 cc., in the morning and evening on the first day, three times on the second day and once on the third day, into castrated mice. Readings of the vaginal spreads are taken after twenty-four, thirty-six and forty-eight hours according to the technic of Allen and Doisy. A final check-up reading is taken after sixty hours from the time of the final injection.

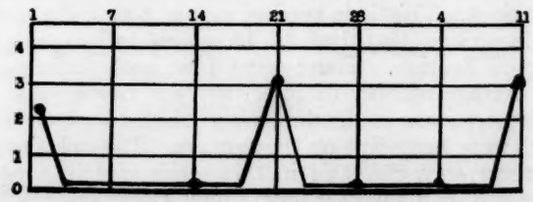

Chart 2.—Blood test performed on adult woman who had never menstruated (primary amenorrhea). A regular subthreshold blood cycle with a three weeks' interval is shown by this study.

The ether employed is Merck's anhydrous ether.

A number of tests have been performed, the chemically pure benzene being employed, but our experience has shown that the ether is more satisfactory. By running two parallel tests, it is possible to avoid delay due to death of the animals during the period of injection as well as to avoid errors due to individual susceptibility of the mice to the hormone.

These observations warrant the deduction that the amount of female sex hormone produced is not necessarily an accurate index of the quantitative effects to be

9. Frank, R. T.: The Female Sex Hormone, Springfield, Ill., Charles C. Thomas, 1929, pp. 127, 191, 189. Frank, R. T., and Goldberger, M. A.: The Female Sex Hormone: VIII. Simplification of Technic, J. A. M. A. **90**: 376 (Feb. 4) 1928.

10. Loewe, S., and Lange, F.: Der Gehalt des Frauenharnes an Brunsterzeugenden Stoffen in Abhängigkeit vom ovariellen Zyklus: Ueber weibliche Sexualhormone: VII, Mitteilung, Klin. Wchnschr. **5**: 1038 (June 4) 1926.

11. Frank (footnote 9).

expected. The effect produced will depend on at least three factors: (1) the amount secreted; (2) the rapidity with which the hormone is utilized or fixed in the genital tract (as previously mentioned, it is as yet unknown whether during its utilization the hormone is fixed in the genital tract, utilized and then excreted or destroyed); (3) the rate and level (threshold) at which the excretion takes place.

To recapitulate, we have noted that, particularly in the sterile and amenorrheic groups, the renal threshold (perhaps also the intestinal threshold, which has not yet been studied in these cases) is persistently and recognizably lowered. The hormone appears to be excreted with sufficient rapidity and in such amount as to cause a reduction of its concentration in the circulating blood. Consequently, in spite of functioning ovaries, little effect on the sex tract is produced. In the one group, amenorrhea with comparative lack of uterine function is noted; in the other, sterility due to insufficient pregravid (premenstrual) uterine reaction results.

Pregnant Women.—During pregnancy, although the hormone level in the circulating blood is high, a huge amount of the hormone is excreted through the kidney. No data are as yet available which permit us to decide whether the renal threshold is unchanged, elevated or depressed during pregnancy.

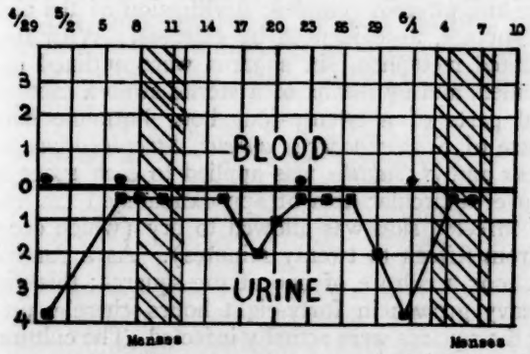

Chart 3.—Blood and urine examination in a sterile woman. Although no positive reaction throughout two menstrual cycles could be obtained in the blood, regular and continuous excretion of the hormone in the urine (based on an extract of 250 cc. samples) was demonstrated.

LOWERING OF THE URINARY THRESHOLD TO FEMALE SEX HORMONE

The lowering of the urinary threshold to the female sex hormone appears of great significance and importance. Amenorrhea and sterility may result therefrom, at least in some instances.

THE URINARY THRESHOLD OF OTHER HORMONES

Some evidence has accrued which shows that under certain conditions the hormone level for anterior pituitary lobe hormone likewise is reduced. It is well established that throughout pregnancy the hormone is excreted in the urine.[12] It seems likely that, although the pituitary may be producing an amount of secretion sufficient for the normal individual, in others, in whom there is a lowered threshold, hypopituitary symptoms may develop.

On the basis of these observations, with all due reserve, we propound the query whether not only the female sex hormone and pituitary hormone but also other internal secretions may be excreted by the kidneys and other emunctories. If this hypothesis obtains, a balance between the amount secreted, utilized and excreted must be drawn in every instance to evaluate the physiologic effects to be looked for, as well as to govern the dosage in organotherapy.

12. Aschheim, S., and Zondek, B.: Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons, Klin. Wchnschr. **7**: 1404 (July 22) 1928.

SUMMARY

1. A lower renal threshold has been demonstrated for the excretion of the female sex hormone in amenorrhea and functional sterility.

2. Evidence is adduced suggesting the existence of a general law governing the urinary threshold excretion of all hormones.

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METAPHEN AS A GERMICIDE AND SKIN DISINFECTANT

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The disinfection of the skin of the patient and the hands of the surgeon is still a fundamental problem in operative surgery. Recently, the question of skin disinfection again came under discussion. Interesting work was done by Simmons [1] on the bactericidal action of mercurochrome-220 soluble and iodine solution in skin disinfection. The author determined the relative bactericidal action of various solutions of mercurochrome and iodine on certain pathogenic bacteria which frequently act as skin contaminants. He concludes that tincture of iodine-U. S. P. is far superior to any solution of mercurochrome for use on unbroken skin for disinfection purposes.

Rodriguez [2] reported the effect of mercurochrome and iodine on the mucous membrane of the mouth, and his conclusions were that "the 5 per cent mercurochrome solution in alcohol and the mercurochrome-alcohol-acetone preparations possess decided advantages over the aqueous solution, but fail in too large a proportion of cases to be considered effective in surface disinfection of the oral mucous membrane. Iodine in dilutions of 3.5 per cent, and even in 1.75 per cent strength, preferably in glycerin, is an effective germicide from the standpoint of surface disinfection of the oral mucous membranes." Reddish and Drake,[3] in a comparison of the germicidal efficiency in skin disinfection of mercurochrome-220 soluble and U. S. P. tincture of iodine, came to the conclusion that "2 per cent mercurochrome in aqueous-alcohol-acetone solution and tincture of iodine are equally effective in disinfecting the unbroken skin." Previous to these publications, Tinker and Sutton [4] found that iodine, trinitrophenol, Harrington's mercuric chloride solution, mercurochrome-220 soluble and potassium mercuric iodide will not kill most of the resistant bacteria and some of the less resistant pathogenic bacteria under conditions of perfect contact.

1. Simmons, J. S.: Bactericidal Action of Mercurochrome-220 Soluble and Iodine Solutions in Skin Disinfection, J. A. M. A. **91**: 704 (Sept. 8) 1928.
2. Rodriguez, F. E.: Mercurochrome and Iodine as Disinfectants of Mucous Membrane of Mouth, J. A. M. A. **91**: 708 (Sept. 8) 1928.
3. Reddish, C. F., and Drake, W. E.: Mercurochrome-220 Soluble and U. S. P. Tincture of Iodine, J. A. M. A. **91**: 712 (Sept. 8) 1928.
4. Tinker, M. B., and Sutton, H. B.: Inefficiency of Most of the Commonly Used Skin Antiseptics, J. A. M. A. **87**: 1347-1350 (Oct. 23) 1926.

It must be borne in mind that every experimenter uses his own method and bacteria of a different virulence, so that it is difficult to compare the results of different workers. Therefore, if the conclusions are to have any weight, the comparative method must be adopted; in other words, the antiseptics investigated should be used in the same experiment, under the same conditions, and with bacteria of the same virulence.

One of us (G. W. R.), believing that a nitro group attached to benzene in conjunction with nuclear mercury was highly desirable for the purpose of stabilizing the molecule and increasing the bactericidal effect, studied many compounds involving the nitro-benzene-mercury complex.[5] A substance to which the name of metaphen was given [6] was finally synthesized. Chemically it is mercuri-4-nitro-2-cresol. It was found to possess much greater germicidal properties than mercuric chloride, itself one of the most powerful of the bactericidal substances heretofore used. Its inhibiting effect in twenty-four hours can be observed in dilutions as high as 1:20,400,000 (*Staphylococcus aureus*). Metaphen, though particularly destructive to the cocci group, has a high bactericidal effect on some other micro-organisms, such as the group of spore-bearing bacilli; its action on the bacilli of anthrax is remarkable. In a one hour exposure of bacilli to the drug, metaphen is eleven times more powerful than mercurochrome. In long exposures it is forty-seven times more powerful than mercuric chloride and 4,300 times more powerful than phenol (carbolic acid), killing the bacteria in a dilution of 1:8,000,000. It is also superior to mercuric chloride and other chemical compounds in its action on diphtheria bacilli, *Bacillus pyocyaneus* and *Bacillus coli*. In the presence of serum, metaphen remains superior to most of the antiseptics. In 50 per cent serum, metaphen destroys *Staphylococcus aureus* at one minute exposure in a dilution of 1:10,000, while to produce a similar effect with mercurochrome 1:400 must be used.

Hexylresorcinol solution S. T. 37 under similar conditions with exposure up to thirty minutes in a dilution of 1:1,000 was found ineffective.

The results which we are reporting now are a part of an extensive study of metaphen and many other antiseptics in blood serum and skin disinfection. The technic used to study the skin disinfection is in principle the same as that of Roberts, with certain modifications. His method is described in a paper recently published by him.[7]

Rabbits were used in these experiments. The hair was first removed from the abdomen by means of a weak solution of barium sulphide; the animal was tied back downward to a flat operating board, and the abdomen was washed for about three minutes with a soap containing metaphen, at the end of which time the soap was removed with sterile lukewarm water. Metaphen in a dilution of 1:1,000 was applied for five minutes and then removed with alcohol and ether. This procedure effected complete sterilization of the abdominal surface, as evidenced by cultures. With the aid of tinted metaphen, six squares were outlined on the abdomen, and by means of a sterile swab a mixture of equal parts of a twenty-four hour hormone bouillon culture of *Staphylococcus aureus, Streptococcus hemolyticus* and *B. subtilis* was applied to each space so as to cover a circular area of approximately 1 cm. radius. The infected skin was allowed to dry (which occurred in from fifteen to twenty minutes). As a control we first took a culture of one of the squares; this yielded a heavy growth in forty-eight hours, thereby proving that the squares were actually infected. The culture was obtained by rubbing the infected area for thirty seconds with a sterile cotton swab moistened in sterile broth; the tip of the swab was clipped and allowed to drop into a test tube containing bouillon. The six infected areas were then covered with sterile gauze saturated with the antiseptic solution being tested. This was left on the skin for five minutes. The abdomen was not protected after the removal of the gauze saturated with the antiseptic, and cultures were made from each of the squares after five, fifteen, thirty, forty-five and sixty minutes. Iodine, acriflavine base and mercurochrome are usually painted over the area to be disinfected, while alcohol, hexylresorcinol and metaphen must be applied by means of a piece of gauze saturated in the respective liquid solution. It was found, however, that better results were obtained also with iodine, acriflavine base and mercurochrome when these substances were applied by means of the saturated gauze; subsequently, therefore, saturated gauze was employed in all cases, in order to standardize the procedure.

The antiseptics used in this work were tincture of iodine-U. S. P., 7 per cent, 5 per cent, 3 per cent and 1 per cent; mercurochrome, 2 per cent water solution; mercurochrome, 1 per cent and 2 per cent acetone-alcohol-water solution; ethyl alcohol; hexylresorcinol solution S. T. 37, and acriflavine base and metaphen solutions, 1:500, 1:1,000, 1:2,000 and 1:2,500. The

TABLE 1.—*Effect of Various Antiseptics Tested*

Solution	Number of Animals Used	Number of Tests	Control*	Percentage of Cases of Complete Sterilization† — Intervals‡ 5 Min.	15 Min.	30 Min.	45 Min.	60 Min.	General Average§
Ethyl alcohol									
80% and 95%	4	20	Positive	0	0	0	0	0	0
Hexylresorcinol solution S. T. 37									
0.1% 1:1,000	2	10	Positive	0	0	0	0	0	0
0.05% 1:2,000	1	5	Positive	0	0	0	0	0	0
Acriflavine base									
2% 1:50	2	10	Positive	50	50	100	100	100	80
1% 1:100	1	5	Positive	0	0	0	0	100	20
Iodine									
7%	10	50	Positive	70	80	90	100	100	88
5%	3	15	Positive	0	0	33	0	0	7
1%	1	5	Positive	0	0	0	0	0	0
Mercurochrome, aqueous solution									
2% 1:50	3	15	Positive	33	33	33	66	100	53
1% 1:100	2	10	Positive	50	0	0	50	0	20
Mercurochrome, alcohol-acetone-water solution									
2% 1:50	16	80	Positive	50	87	87	81	87	79
Metaphen, aqueous solution									
0.2% 1:500	3	15	Positive	100	100	100	100	100	100
0.1% 1:1,000	3	15	Positive	100	100	100	100	100	100
0.05% 1:2,000	2	10	Positive	100	100	100	100	100	100
0.04% 1:2,500	10	50	Positive	100	100	100	100	100	100

* Positive control indicates the presence of bacteria on the area of the skin to which cultures were applied.

† The figures shown give the percentage of complete sterilization for each interval and for each antiseptic tested. Thus, 0 means positive growths of bacteria in all tests of the interval in question, while 100 means complete sterilization in all tests in the interval considered.

‡ Interval indicates that time elapsing between removal of the gauze saturated with antiseptic and the making of culture tests of the skin.

§ General average is the percentage of complete sterilization in all tests with the given solution, all intervals included. Thus, 100 per cent general average means complete sterilization in all tests and at all intervals with the solution in question.

5. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: J. Infect. Dis. **24**: 547 (June) 1919.

6. Raiziss, G. W., and Severac, Marie: J. Lab. & Clin. Med. **9**: 71 (Nov.) 1923; J. Infect. Dis. **40**: 447-452 (March) 1927.

7. Roberts, Kingsley: Ann. Surg. **89**: 183 (Feb.) 1929.

results are summarized in table 1. For each solution tested, the percentage of cases of complete sterilization is shown for each interval of time (five, fifteen, thirty, forty-five and sixty minutes). The general average indicates the percentage of cases of complete sterilization in all of the tests made on the same solution.

An inspection of table 1 dicloses the following results: with ethyl alcohol 80 per cent and 95 per cent, the first antiseptic on the list, it will be seen that in no case, out of twenty tests made, was complete sterilization obtained. This would seem to disqualify ethyl alcohol completely as a skin disinfectant. A similar conclusion holds for hexylresorcinol S. T. 37, in solutions of 1:1,000 and 1:2,000. Growths were obtained in all of the fifteen tests made with this substance. Somewhat better results were obtained with acriflavine base, although the small number of tests made, two for each interval with the 2 per cent solution and one for each interval with the 1 per cent solution, renders the figures somewhat paradoxic. Thus, the zeros for the first four intervals with the 1 per cent solution and the 100 for the sixty minute interval merely mean that the first four tests gave positive growths while the sixty minute test gave complete sterilization. When applied to such small numbers, percentages lose their meaning; and they were computed in this case only to preserve uniformity in the table. The large number of growths obtained in the first tests with this antiseptic, as well as in the case of the preceding tests, made further experimentation unprofitable.

The data for iodine show that it is only the 7 per cent solution that is at all worth considering as a skin disinfectant, since even the 5 per cent solution shows only 7 per cent complete sterilization in tests including all intervals. The general average for the 7 per cent solution is 88 per cent; this is probably the best measure of its efficiency, since the variations in the percentage for the different intervals do not seem to be significant, although they show a slight trend to increasing efficiency with increasing interval. The meaning of the percentage here is that, in 12 per cent of the fifty tests made, growths were obtained.

In the case of mercurochrome, both the aqueous solution and the alcohol-acetone-water solution were tested; the first gave general averages of 53 per cent and 20 per cent in solutions of 2 per cent and 1 per cent, respectively, while the 2 per cent alcohol-acetone-water solution showed a general average of 79 per cent, distinctly inferior to that of 7 per cent iodine (88 per cent). This inferiority persists when the results for mercurochrome and iodine for each interval are compared. The total number of tests for this solution of mercurochrome was eighty. Thus, while neither iodine nor mercurochrome shows complete sterilization in all cases, iodine has a distinct advantage.

The only antiseptic with which complete sterilization in all cases was obtained is metaphen. This is especially striking when one considers the dilutions in which it was employed. While 2 per cent mercurochrome produced sterilization in 79 per cent of cases and 7 per cent iodine in 88 per cent of cases, a solution of metaphen 1:2,500, or 0.04 per cent, produced 100 per cent sterilization in all of the fifty tests made. Needless to say, solutions of metaphen stronger than that, i. e., 1:500, 1:1,000 and 1:2,000, which have also been tested, showed complete sterilization in all cases also. It is important to note that metaphen, in all of the solutions mentioned, rendered the skin perfectly sterile in five minutes, and that it remained sterile in all cases an hour after the gauze saturated with the metaphen solution had been removed and the skin left exposed.

Since, to be really effective in surgical work, an antiseptic must render the skin sterile in a period as short as five minutes, we compare in table 2 the percentages of cases of complete sterilization for the five minute interval with the three most commonly used antiseptics, iodine, mercurochrome and metaphen.

It is thus seen that metaphen alone gives complete sterilization at the end of five minutes, and in any dilution up to 1:2,500 (0.04 per cent).

While some authors, in estimating the efficiency of an antiseptic, consider the decrease in the number of micro-organisms as an indication of germicidal action, our sole criterion in this study was complete sterilization of the infected skin. With this standard in view, it is easily seen why ethyl alcohol, for example, was classified as totally ineffective. It is our contention that only the antiseptic which has survived the most rigid test which it is possible to impose is to be considered safe for use in any and all cases that may arise in practice.

TABLE 2.—*Percentage of Cases of Complete Sterilization*

Five Minute Interval		
Antiseptic	Number of Tests	Percentage
7% iodine	10	70
2% mercurochrome (alcohol-acetone-water)	16	50
Metaphen, 1:500	3	100
Metaphen, 1:1,000	3	100
Metaphen, 1:2,000	2	100
Metaphen, 1:2,500	10	100

CONCLUSIONS

1. The method presented here for estimating the efficiency of an antiseptic has as its basis the sterilization of the infected skin. It is our contention that only an antiseptic which passes the most rigid test is to be considered safe for use in all clinical cases in which a germicide is to be applied.

2. Considered from this point of view, ethyl alcohol, which is used extensively, is disqualified as a skin disinfectant.

3. A solution of hexylresorcinol 1:1,000 (S. T. 37) gave growths of bacteria in all tests.

4. Acriflavine base was found to be efficient in the 2 per cent concentration, resulting in sterilization in 80 per cent of cases.

5. It is important to note that a 5 per cent solution of iodine is ineffective and a 7 per cent is effective in 88 per cent of cases.

6. Two per cent mercurochrome-alcohol-acetone-water solution showed only 79 per cent efficiency.

7. An aqueous solution of metaphen 1:2,500, or 0.04, produced sterilization in all of the fifty tests performed.

8. Metaphen proved to be efficient in very high dilutions. Thus a 1:2,500 dilution of it, or 0.04 per cent, was found to produce 100 per cent sterilization, while 7 per cent iodine and 2 per cent mercurochrome sterilized at five minute intervals to the extent of 70 per cent and 50 per cent, respectively. This indicates that better results were obtained with metaphen in dilutions 175 and fifty times greater than those employed for iodine and mercurochrome, respectively.

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THYROID EXTRACT IN THE TREATMENT OF NEPHROSIS

REPORT OF THREE CASES *

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It is now generally considered that nephrosis is not primarily a kidney disease. Many observers have contended that the condition is due to a chronic infection caused by a staphylococcus present in the nasal sinuses or by some other upper respiratory infection and that the condition is controlled by appropriate treatment of the sinus disease or infection. Reports in confirmation of such observations may be found in the current literature. It is not my intention to present a discussion of the etiology of nephrosis. However, the fact that adequate treatment of the infectious processes in the three cases reported had no effect on the edema and albuminuria which characterize the disease, even though

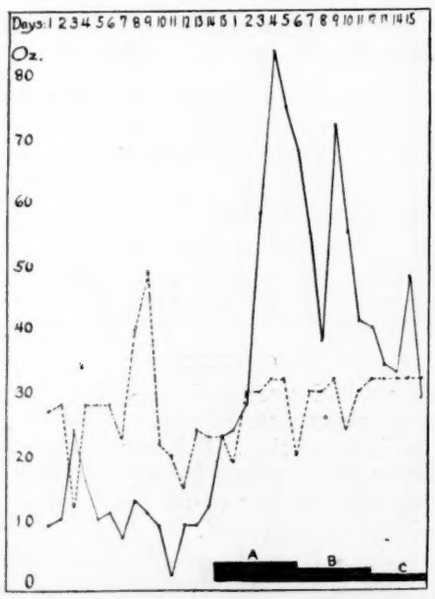

Chart 1.—Relation between fluid intake and urine output for fifteen days before and after thyroid extract was started in case 1. In these charts the broken line indicates fluid intake; the solid line, urine output. Thyroid therapy: *A*, 10 grains (0.65 Gm.), daily; *B*, 6 grains (0.4 Gm.); *C*, 3 grains (0.2 Gm.).

persisted in for long periods of time, whereas the administration of thyroid extract produced a marked and immediate response as manifested by the disappearance of the edema and the reduction of the albumin, seems to me to confirm Epstein's theory that the disease is due to a metabolic disturbance rather than to a nasal sinus or other upper respiratory infection.

REPORT OF CASES

CASE 1.—A Japanese boy, aged 9 years, was referred to the clinic with a history of generalized edema and marked albuminuria, which had developed five months earlier following an acute cold. During the greater part of this five months the boy had been in the hospital on dietetic treatment of various kinds including both low and high protein with low salt diets, restriction of fluid intake, treatment of the existing sinus condition and various types of diuretic treatment. Merbaphen had increased the urinary output temporarily; thyroid extract in 1/10 grain (0.006 Gm.) doses three times a day had produced no result.

When the boy was first seen by us he had a general anasarca from the head down; his weight was 82½ pounds (37.5 Kg.), of which 25 pounds (11.3 Kg.) was apparently due to edema; the temperature was 99.6 F., the pulse 100, and the blood pressure 100 systolic and 60 diastolic. Examination showed a postnasal discharge; many moist râles in the bases of both lungs; a rapid heart beat; an abdomen greatly distended with fluid, with scars of former paracentesis over the lower median line, and edema of the scrotum and penis. Albumin in the urine had ranged from 5.5 to 20 per cent, with casts evidenced at occasional intervals. Chemical study of the blood revealed: urea nitrogen 28 mg., total nonprotein nitrogen 40 mg., creatinine 1.1 mg. and chlorides 59.5 mg. The blood count when we first saw the patient showed: red corpuscles, 2,740,000; white corpuscles, 9,500; hemoglobin 40 per cent (Dare), with a normal differential count. The basal metabolic rate, as nearly as could be determined, based on the calculated weight with allowance for the edema, was minus 30. The blood Wassermann reaction was negative.

The patient was immediately placed on a high protein (100 Gm.), salt free diet with fluids restricted to 1 quart daily, thyroid extract, 10 grains (0.65 Gm.) daily, in divided doses, and 10 drops of viosterol daily. Chart 1 shows the immediate and extraordinary increase in fluid output which took place; within twenty-four hours the urinary output had increased to 24 ounces (700 cc.) and within three days to 84 ounces (2,500 cc.), the fluid intake remaining at about 30 ounces (900 cc.). A rapid disappearance of the edema accompanied the increase in urinary output. Five days after the beginning of thyroid treatment, a blood transfusion of 300 cc. of whole blood was given. After one week, the thyroid extract was decreased to 6 grains (0.4 Gm.) daily. Two weeks after the thyroid therapy was begun, the edema had entirely disappeared and the weight was 58 pounds (26.3 Kg.). The pulse was regular and slower than when the thyroid was started. The sinuses were still discharging a slightly purulent material and were being irrigated. Four weeks after thyroid medication was begun the patient was discharged from the hospital.

The patient is now, five months after leaving the hospital, in school and leading a normal life. He has no edema; his weight is 74½ pounds (33.8 Kg.), a gain of 16 pounds (7.3 Kg.); the heart is normal; the blood pressure 100 systolic and 60 diastolic; the pulse rate 76; the basal metabolism approximately minus 10 and the serum protein 5.66 mg. Some infection is still present in the nose, and the urine is clearing gradually. He is continuing with thyroid medication, 3 grains (0.2 Gm.) daily.

CASE 2.—A boy, aged 8 years, was admitted to the hospital after an illness of two months which began with an edema of the feet, legs, hands and face, some easy fatigue and headaches. The edema had been growing progressively worse and there had been some nasal discharge and a slight cough. The family history was negative. The child weighed 7 pounds (3.2 Kg.) at birth; teething and development were somewhat retarded; he had had frequent colds with tonsillitis followed by tonsillectomy and adenoidectomy two years before, and he had had measles and pertussis.

On entrance to the hospital there was marked edema of the face with the eyes swollen shut; the mucous membrane of the nose was injected, with pus in both nares and a postnasal discharge; the hygiene of the teeth was poor. There was edema of the lower chest wall with moist râles and dulness at both bases, probably due to fluid. All heart sounds were somewhat muffled; the rate was 88, and the blood pressure 100 systolic and 60 diastolic. The abdomen was greatly distended with flatness in both flanks, and there was marked edema of the scrotum and penis and of the lower extremities. The weight was 89 pounds (40 Kg.). The urinary output was 10 ounces (300 cc.) in twenty-four hours and the urine showed 7.5 per cent of albumin, with a specific gravity of 1.024; no casts, pus or blood was evident. A phenolsulphonphthalein test showed 70 per cent of the dye excreted in two hours. The urea nitrogen of the blood was 12.5 mg. and creatinine, 1.5 mg. The blood count showed: red corpuscles 4,150,000, hemoglobin 13.5 Gm. Newcomer (64 per cent Dare), and white corpuscles 10,800. The blood Wassermann reaction was negative, and

* From the Rees-Stealy Clinic.

stool examination was negative. Roentgen examination of the sinuses showed a bilateral maxillary sinusitis. The basal metabolic rate was approximately minus 20.

For three months the treatment had consisted of a high protein (100 Gm.) salt free diet, restriction of fluids to 30 ounces (900 cc.) daily; double antrotomy; ammonium chloride, merbaphen and mersalyl as diuretics; two blood transfusions, and paracentesis abdominis once or twice weekly. The blood

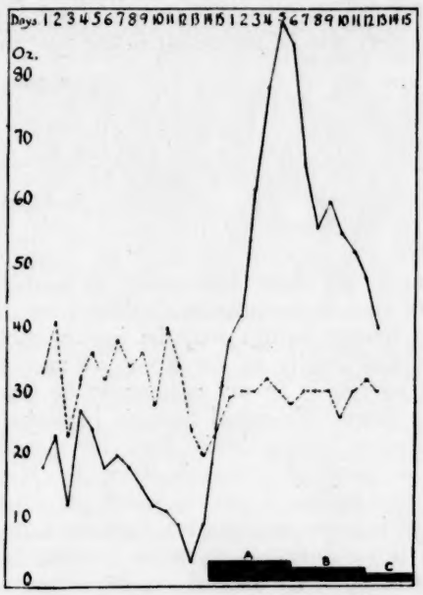

Chart 2.—Relation between fluid intake and urine output for fifteen days before and after the starting of thyroid extract in case 2. Thyroid therapy: *A*, 9 grains (0.6 Gm.), daily; *B*, 6 grains (0.4 Gm.); C, 3 grains (0.02 Gm.).

picture at the end of this time was approximately the same as at the time of admission to the hospital and there had been no permanent change in the edema from the use of diet, diuretics, sinus operations or transfusions. At this time, thyroid extract, 9 grains (0.6 Gm.), daily, was given. The marked increase in urinary output which resulted is shown in chart 2. The loss in weight in two and a half weeks was 30 pounds (13.6 Kg.); the amount of albumin in the urine dropped to 1.5 per cent; the pulse rate dropped to between 70 and 80, and the blood pressure remained at 100 systolic and 66 diastolic. The thyroid extract was decreased after two weeks to 3 grains (0.2 Gm.) daily. The edema entirely disappeared and the fluid intake and output balanced. Six weeks after the thyroid therapy was begun the patient was discharged from the hospital with no edema and a decrease in the albumin in the urine to 1 per cent.

The patient has been observed at monthly intervals since leaving the hospital; he has remained on a high protein, low salt diet with 3 grains (0.2 Gm.) of thyroid daily, and is gaining weight normally. He still has some albuminuria but is in school and has had no recurrence of the edema.

CASE 3.—A boy, aged 12 years, was admitted to the hospital because of marked generalized edema, easy fatigue, some dyspnea and scanty urination, symptoms which began with a heavy cold one month earlier. He had had influenza and measles, rheumatic pains, acute appendicitis, with operation in 1927, and a tonsillectomy and adenoidectomy in 1928.

Physical examination showed him to be well nourished, with generalized edema, the eyes swollen almost shut, and pitting of the skin over the entire lower part of the body up to the chest. There was some postnasal discharge. Chest examination showed decreased breath sounds with moist râles over both lower lung fields. The heart sounds were muffled, and the blood pressure was 116 systolic and 74 diastolic. The abdomen was greatly distended with fluid and there was evidence of fluid in the thoracic cavity. The weight was 108 pounds (49 Kg.), of which 25 pounds (11.3 Kg.) was evidently due to edema. The urinary output was 14 ounces (415 cc.) in twenty-four hours and the urine showed 4 per cent albumin with a specific gravity of 1.016; no casts, pus or red cells were found. In the phenolsulphonphthalein test 65 per cent of the dye was excreted in two hours. The blood count showed red corpuscles 4,350,000, hemoglobin 13.6 Gm. Newcomer (65 per cent Dare), and white corpuscles 14,000; the blood Wassermann reaction was negative. Chemical examination of the blood showed urea nitrogen 15.3 mg., creatinine 1.8 mg., and nonprotein nitrogen 30.6 mg. The stools contained *Giardia* cysts; blood culture was negative. An examination of the sinuses disclosed no definite sinusitis; the left antrum was more opaque than the right and the outline slightly thickened, suggesting a thickened mucosa; roentgen examination of the chest was negative for tuberculosis.

For two months various types of treatment had been tried, including low protein and high protein with low salt diets, all the accepted diuretics—merbaphen, mersalyl, ammonium chloride, theobromine sodiosalicylate, double antrotomy and repeated treatment of the sinuses, two transfusions and repeated paracentesis abdominis. At the end of two months, thyroid extract, 10 grains (0.65 Gm.) daily, was started with the marked immediate response in urinary output noted in chart 3. At the end of two weeks the edema had entirely disappeared and the weight had decreased from 114 pounds (51.7 Kg.) to 80 pounds (36.3 Kg.). On the patient's discharge from the hospital one month after the thyroid medication was begun, the urine showed 1.5 per cent albumin; the blood was normal, and the basal metabolic rate was minus 12. The thyroid dosage was reduced to 6 grains (0.4 Gm.) and finally to 3 grains (0.2 Gm.) daily. The patient is being observed at monthly intervals, as the urine still shows some albumin and the high protein, salt free diet with 3 grains (0.2 Gm.) of thyroid extract daily is being continued. There has been no recurrence of edema and the gain in weight has been normal.

COMMENT

None of these three cases conformed in clinical symptoms to cases of myxedema since there was no mental retardation and no hair or skin changes, and, after the administration of thyroid, there was no change in the blood pressure or heart rate. The only similarity was in the response to thyroid medication. Epstein [1] has expressed the difference between myxedema and nephrosis by stating that "the distinction might be clarified by designating myxedema as an actual hypothyroidism and chronic nephrosis as a relative hypothyroidism." He does not believe that there are pathologic changes in the thyroid gland as in myxedema but that "its activity, whether normal or even increased, is insufficient to cope with the existing metabolic disturbance."

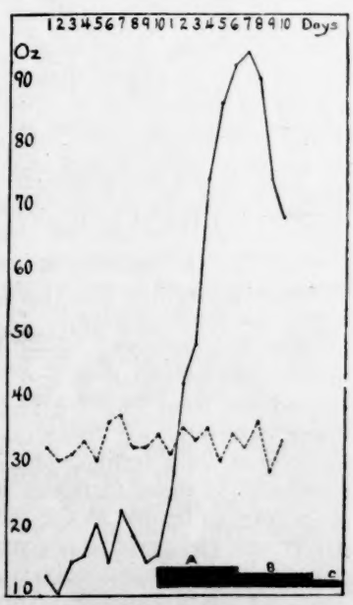

Chart 3.—Relation between fluid intake and urine output for ten days before and after thyroid extract was started in case 3. Thyroid therapy: *A*, 10 grains (0.65 Gm.), daily; *B*, 6 grains (0.4 Gm.); *C*, 3 grains (0.2 Gm.).

My experience in these cases has shown that in order to secure results thyroid extract must be given in adequate amounts. The administration of small doses of

1. Epstein, A. A.: Thyroid Therapy and Thyroid Tolerance in Chronic Nephrosis, J. A. M. A. 87: 913-918 (Sept. 18) 1926.

thyroid extract in the first case cited produced no results, whereas prompt response followed the administration of thirty times the amount originally prescribed. In no case did the thyroid extract cause diarrhea or vomiting and in all cases the pulse rate instead of being accelerated was decreased.

It would seem that criticism of thyroid therapy in cases of nephrosis must be based either on the administration of thyroid extract in inadequate amounts or on its administration in cases which are not cases of true nephrosis.

CONCLUSIONS

The three cases of nephrosis here reported demonstrate the effect of thyroid therapy in the management of the disease. These cases would seem to show that:

1. Dietetic therapy and the treatment of the existing sinus conditions, or other upper respiratory infection, while important and necessary adjuncts in the treatment of nephrosis, are not sufficient in themselves to control the edema and albuminuria.

2. Thyroid extract is an effective therapeutic agent in the management of true nephrosis.

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A CONSIDERATION OF SOME OF THE SO-CALLED OBSCURE CAUSES OF STERILITY

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While in many married couples the cause of sterility is easy enough to determine, and aspermia, azoospermia or closed fallopian tubes at once explain the childlessness, there are other cases in which the source of the disturbance of fertility is much harder to locate. In such cases, if nothing else can be found wrong with either the husband or the wife, the so-called obscure causes of sterility are often invoked. It is these causes that I will consider here. Generally they are classified as selective fertility and incompatibility of the sexual partners due to (*a*) cervical secretions; (*b*) vaginal acidity; (*c*) sperm immunity, or (*d*) psychic causes.

SELECTIVE FERTILITY

Selective fertility has also been called relative infertility, or relative sterility and incompatibility of the sexual partners. Since sterility and fertility are practically always relative and rarely absolute, I have coined the term selective fertility as being, I believe, more descriptive of those cases in which a man may impregnate one fertile woman and fail to do so with another. In many instances such selective fertility can be shown to be due to the fact that the male has relatively few and perhaps not very strong sperms and will achieve impregnation only if conditions in the female tract are exactly suitable. A mild cervicitis, for example, might explain such selective fertility. Again, the more highly developed libido of one of the women, leading to more frequent sexual intercourse, might reduce the sperms in number and perhaps lead to abnormal sperm forms and so produce relative sterility, since it is well known that frequent intercourse reduces the number of sperms. Thus, if two partners are both of somewhat lowered fertility, a sterile union might be the result, whereas the mating of each one of the couple with a perfectly normal individual will produce offspring. Reynolds and Macomber [1] have discussed this point very well. They believe that so long as the fertility of the one partner multiplied by that of the other is above 45 per cent (assuming that 10 represents the normal for each individual, and 100 the product of a normal man and wife), offspring are possible. It seems to me, however, judging from the results obtained in the examination of the male, that if the fertility of either partner falls below 6, even if the other one can be rated as 10, sterility will be the result in the vast majority of cases.

I am of course aware that a good many other causes have been advanced in explanation of selective fertility, but it seems to me that the best one can say for them is that they are all theoretical, many of them improbable and some illogical. The supposition, for instance, that fertility is influenced by the blood grouping of the sexual partners appears especially far fetched. Nature would hardly set about deliberately to limit procreation to certain chance combinations. The idea of Vignes [2] that two human beings may be incompatible because they are biologically as far apart as two animals of different species is in my opinion to be placed in the realm of fancy. So-called biologic incompatibility has indeed always been a fertile field for speculation, but recently a piece of research work by Kurzrok and Miller [3] has appeared which, based on actual experimentation, is to be welcomed as perhaps throwing some light on this subject of selective fertility. According to the investigations carried on by these two men, a normal specimen of semen should dissolve cervical mucus. It was found, however, that a certain specimen of semen might dissolve one sample of cervical mucus and yet fail to do so with another sample from a different woman. Kurzrok and Miller thus believe that a lytic action of the semen for the cervical mucus is necessary and that a lysin, acting like a catalytic agent and carried by the head of the spermatazoon, dissolves the cervical mucus and thus enables the sperms to penetrate the cervical mucus. Whether or not such a lytic action, or the absence of a lytic action, will explain many cases of selective fertility remains to be seen.

There are some other possibilities to be thought of in this connection. First of all, the mucus of the uterine cavity and the tubes dissolves the cervical mucus, so that such experiments as Kurzrok and Miller made are complicated by this fact. Perhaps they are also influenced by the time, the strength and the completeness of the orgasm of the female. The fact that the cervix post coitum may look cleaner than before may be explained along similar lines, the congestion of sexual activity squeezing the old mucus out of the cervical canal and allowing fresher and cleaner mucus to take its place. Besides this, the mechanical factors of coitus must be considered also. Naturally the amount of lysin carried by a spermatazoon on the surface of its head must be extremely minute; yet too much value must not be attributed to this fact alone, as a catalytic agent works in extremely minute amounts. I cannot, however, follow Kurzrok when he says that the sperms may carry a lytic agent up to the ovum and thus penetrate the egg. Certainly any lysin the sperms may carry into the cervix must be mechanically lost long before the sperms reach the tube. Furthermore, even if one

1. Reynolds, Edward; and Macomber, Donald: Am. J. Obst. & Gynec. **2**: 379 (Oct.) 1921.
2. Vignes, H.: Presse méd. **32**: 460 (May 24) 1924.
3. Kurzrok, R., and Miller, E. G., Jr.: Am. J. Obst. & Gynec. **15**: 56 (Jan.) 1928.

believes in a lysin or fertilizin (Lillie [4]) carried by the sperms, there are other mechanical factors to be discussed later which may enter here in the process of the actual fertilization. It seems to me that perhaps the tubal secretion acting on the egg may make it more permeable, analogous to the action in marine eggs, which, as they grow older, become more permeable to the sperms. This mechanically would be a more reasonable theory since both the seminal lysin described by Kurzrok and Miller and the tubal secretion dissolve cervical mucus and thus may act in the same way on the ova. Aside from this, moreover, the actual presence of a fertilizin has never been proved, and attempts to isolate a cytolytic substance from the sperms have always failed for the same species. Although a watery extract of sperms may be highly cytolytic for ova of different species, there is no tissue specificity in this action, since cells other than ova are similarly affected.

VAGINAL ACIDITY

As far as vaginal acidity is concerned, I stated in a previous paper [5] that I did not believe such acidity had anything to do with sterility. Since then further tests have only strengthened my opinion in this regard. The experiments of Killian and Stepita [6] have strongly corroborated my views, as these investigators found that the sperms split glycogen into lactic acid but that the semen has such a marked buffer action that despite this fact the alkalinity of the seminal fluid rises, and falls only as an end-reaction. Now vaginal acidity, which is normal in contradistinction to the alkalinity of the cervical mucus,[7] is due to lactic acid and the highest values of vaginal acidity are always found in the most normal vaginas. Any vaginal discharge reduces acidity. Furthermore, vaginal acidity, except during pregnancy, practically never exceeds 0.5 per cent of lactic acid (von Jaschke,[8] Menge [9]), or a hydrogen ion concentration of 4.7, according to Zwolinski and Truzkowski,[10] and I have determined by repeated trials that sperms live for hours in 0.5 per cent lactic acid solution.[11]

In addition, in considering any possible effects of the vaginal acidity on the sperms, it must be remembered that the titrated value of the vaginal acidity will always be reduced by the semen itself and that the volume of the alkaline semen far exceeds that of the normal acid vaginal secretion (and if the latter is not normal it will be less acid). Again, the semen is normally deposited in the least acid portion of the vagina near the cervix. At the same time I admit that a long continued stay of the sperms in the acid vagina will kill them off. Here, however, the question arises, How long do normal sperms remain in the vagina? An actively motile spermatazoon, according to Henle,[12] will travel 2 cm. in seven minutes. Adolphi [13] found the spermial motion to be from 14 to 23 microns a second, which equals about 1 cm. in eight minutes. Lespinasse,[14] using a one-sixth objective and a number 1 ocular, found that the sperms moved across the field of the microscope in from six to twenty seconds, which agrees fairly well with the two preceding statements. My own work likewise corroborates these observations, as I determined that actively motile sperms travel between 1 and 2 cm. in eight minutes. With such rapidity of locomotion, vaginal acidity is not going to affect the normal and strong sperms but only the weakened or entangled forms. W. W. Williams, D.V.M., of Springfield, Mass., an authority on animal sterility, recently wrote me that in cows he had used antiseptic douches from two to three hours after service without preventing conception. This shows again the rapidity with which the sperms travel.

I am convinced, therefore, that the compatibility test devised by Huhner,[15] much as it has been lauded, is in some ways misleading and at times may have done more harm than good because it has prevented inquiry in the right direction. A cervicitis or other lesion which might entangle the sperms can be recognized without a compatibility test, and besides, even if sperms should be found enmeshed in the cervical mucus, how are we to judge whether their stronger brethren have not already passed the barrier? If, as is usually the case, the compatibility test is done one hour after intercourse, the real possible impregnators of the ovum will be far beyond our reach, and whether those left in the vagina are dead or alive depends in most instances on purely local conditions. If the compatibility test, on the other hand, is done very early after intercourse, inimical secretions cannot yet have affected the sperms. Dr. Williams, on the basis of his experience with animals, corroborates my views in this matter. He told me that he does not depend much on the motility alone of the sperms obtained from the vagina of the cow, because in many cases he found it hard to obtain motile sperms even with bulls of proved high fertility. Nevertheless, since long continued acidity is detrimental to sperms, it might be thought that the sodium bicarbonate douches often recommended might be valuable. Weil [16] has shown that the beneficial effects on the sperms are exerted only within narrow limits of alkalinity and that a change of the hydrogen ion concentration in either direction therefrom acts detrimentally. Furthermore, the attempt to save sperms too weak to survive normal conditions may of itself be of rather doubtful value.

The facts mentioned here, indicating that incompatibility of the male and female secretions is rather unimportant, are at marked variance with the large literature on the subject and the oft-mentioned fact that the sperms, although motile in a condom specimen, become nonmotile when mixed with the female secretions. This contradiction is, however, not very real, as many of the so-called incompatibility investigations were carried on with a small drop of semen and a small drop of vaginal or cervical secretion. Here the proportions are all wrong. The amount of semen normally far exceeds the cervical, and especially the vaginal, secretion. Thus, small quantities of semen might give a different reaction from the whole of the normal ejaculate. This may be the reason why, according to Cary,[17] very small ejaculates often are the causes of

4. Lillie, F. R.: Problems of Fertilization, Chicago, University of Chicago Press, 1919.
5. Moench, G. L.: Am. J. Obst. & Gynec. **13**: 334 (March) 1927.
6. McCarthy, J. F.; Stepita, C. T.; Johnston, M. B., and Killian, J. A.: J. Urol. **19**: 43 (Jan.) 1928.
7. According to Zuntz (Weibliches Geschlechtsorgane, in Oppenheimer's Handbuch der Biochemie, Jena **4**: 666, 1925), the cervical secretion is just alkaline.
8. Von Jaschke: Arch. f. Gynäk. part 1, **125**: 224, 1925.
9. Menge: Arch. f. Gynäk. part 1, **125**: 251, 1925.
10. Zwolinski and Truzkowski: Gin. Palsko **5**, 1926; abstr. Zentralbl. f. Gynäk., 1926, p. 3456.
11. After I had finished these experiments I found that Graefenberg (Arch. f. Gynäk. **108**, numbers 2 and 3, 1917) had made similar investigations. He found that a 1 per cent lactic acid solution killed off most of the sperms in three hours, whereas a 0.5 per cent solution left them practically unaffected.
12. Henle, cited by Posner: Arch. f. Frauenk. u. Eugenik. **7**: 209, 1920.
13. Adolphi: Textbook of Pathology, Szymonowicz, ed. 2, Würzburg, Kobitzsch, 1915, p. 279.
14. Lespinasse, V. D.: Diagnosis and Treatment of Weak Spermatozoa, J. A. M. A. **68**: 343 (Feb. 3) 1917.
15. Huhner: Internat. J. Surg., March, 1921; Sterility in the Male and Female, New York, Rebman Company, 1913; Bull. New York Acad. Med., series 2, **4**, number 1.
16. Weil: Arch. f. Frauenk. u. Eukenik. **7**: 238, 1920.
17. Cary: Personal communication to the author.

infertility, even though everything else seems normal. In other cases, the incompatibility tests were done with semen diluted with physiologic solution of sodium chloride or by washing the semen and vaginal secretions out of the female genital tract with physiologic solution of sodium chloride. This solution, however, is not a good preservative for the sperms, as I have shown by numerous tests, and furthermore, any dilution of the semen changes its buffer action and causes changes in the osmotic pressure to which sperms are sensitive. Again, the vitality and fertilizing power of the sperms, as shown by Cohn,[18] varies with their carbon dioxide production, and dilute suspensions of sperms will thus differ from dense suspensions, even if all other things are equal. Cohn showed that sperms by the expenditure of their energy produce carbon dioxide. The accumulation of the carbon dioxide narcotizes the germ cells so that they lose more or less of their motility and become dormant, though they do not die. When the accumulated carbon dioxide is eliminated, the sperms will again become actively motile. We are at present trying to investigate this point in human material. If it is true, as Cohn believes, then it is evident that the greater the number of sperms, the greater will be the carbon dioxide production. Thus denser sperm suspensions will sooner show apparently dead sperms, although in reality the sperms in dense suspensions will live longer, since it seems as if each spermatozoon has only a certain amount of energy to expend and will of course live over a longer period if it remains dormant during a part of this time.

Again, it must be remembered that spermatozoa of all kinds studied so far exhibit thigmotactic or contact reactions (Dewitz,[19] Massart[20]); that is, they tend to remain in contact with a solid body, and their motion changes from a progressive, horizontal, revolving one to a rotating motion only. This normal reaction of sperms, which undoubtedly is necessary in order to enable the sperms to penetrate the egg, might easily under the microscope be misinterpreted. Furthermore, the environment of the sperms under a coverslip on a slide can hardly be normal, so that any observed action on the part of the sperms under such conditions might easily be an exaggerated or abnormal one. Such abnormal reactions might then be called conclusive evidence of the incompatibility of the sexual partners, whereas in reality, in view of the conditions under which the tests were done, they are only to be expected and furnish no evidence of what really occurs in the female genital tract.

SPERM IMMUNITY

In the process of fertilization, nature seems to be especially wasteful. Millions of sperms are cast forth where often only one can achieve its purpose, and the question of what happens to the other sperms or what their purpose is has long been asked but remains unanswered. Do all the sperms but one die and then disappear as waste material, or are they absorbed to act on the mother's metabolism or on the growing fetus? In some of the invertebrates, the sperms invade the entire body of the female. In one instance, at least, the male has a special hollow spur and injects the sperms directly into the tissues of the female, from which they migrate to the ovum. Kohlbrugge[21] says that in the higher animals also (mice, bats, rabbits) the spermatozoa penetrate the epithelium of the uterine cavity and invade the underlying connective tissue. If such a reaction takes place normally, it must have some effect, and Kohlbrugge thinks that the sperms stimulate the uterine mucosa to prepare for nidation. Aside from this, however, certain immunologic reactions are to be thought of, and Waldstein and Ekler[22] state that after coitus a distinct Abderhalden reaction for testicular proteins develops. Dittler[23] states that he sterilized female rabbits temporarily by the injection of rabbit sperms but failed to produce sterility with sperms of other species. He also says that the serum of the injected rabbits was spermotoxic and agglutinative. Metalnikoff and Strelnikoff[24] believe that sperms produce active antibodies rapidly.

On the basis of such experiments and statements and the fact that the pregnant female guinea-pig may develop an eclamptic-like condition when served after impregnation, Metchnikoff,[25] Landsteiner,[26] McCartney,[27] Mayer,[28] Vogt[29] and many others believe that sperm immunity may be the cause of some otherwise unexplainable cases of sterility. There are nevertheless many objections to accepting such a theory. In the first place, the Abderhalden reaction is unreliable, even aside from the fact that the ovary and testicle have been shown, as stated before, not to be necessarily antagonistic. Aside from this, it also must be remembered that the female rabbit ovulates only on coitus and that the reaction obtained by Waldstein and Ekler may have been due to the fact that follicular fluid from the rupture of a graafian follicle was absorbed by the blood stream of the female rabbit. Furthermore, the sterilization of the female has been carried out again and again with the sperms of other species, whereas, exactly contrary to Dittler's observations, sperms of the same species failed to produce sterility.

It is interesting in this connection to note that Godlewski[30] found that between the eggs of *Sphaerechinus* (sea urchin) and the sperms of the annelid *Chaetopterus* there was an antagonistic reaction, and that the sperms of *Chaetopterus* when mixed with equal parts, or even in proportions of one to four, with sperms of *Sphaerechinus* prevented the latter sperms from fertilizing the *Sphaerechinus* ova. He also found that the sperm of *Dentalium* (mollusk) mixed with *Sphaerechinus* sperms prevented fertilization of sea urchin eggs in the same way. Herlant[31] carried on similar experiments and found the lack of fertilization of the ova of the sea urchin to be due only to the action of the other sperms, since fertilization of the ova which had been in the mixture of the two sperm species could be achieved later on by fresh sea urchin sperms. Furthermore, it was shown that the presence of blood of the species inhibited fertilization. This lends support to the supposition that all sperm immunity is nothing more than a reaction to parenterally introduced foreign proteins. Oslund,[32] too, judging from his experiments, does not believe much in the specific spermotoxin but thinks that many of the results obtained by animal experiments are explainable by an

18. Cohn: Anat. Record **2**: 530, 1907; Biol. Bull. **34**: 167, 1918.
19. Dewitz: Arch. f. d. ges. Physiol. **37**: 219, 1885; **38**: 358, 1885-1886.
20. Massart: Bull. de l'Acad. roy. d. sc. de Belg. **15**: 750, 1889.
21. Kohlbrugge: Arch. f. Entwicklungsmechanik **35**: 165, 1912.
22. Waldstein and Ekler: Wien. klin. Wchnschr. **26**: 1689, 1913.
23. Dittler, R.: München. med. Wchnschr. **67**: 1495 (Dec. 24) 1920.
24. Metalnikoff and Strelnikoff: Ztschr. f. Immunitätsforsch. u. exper. Therap. **17**: 186, 1913.
25. Metchnikoff: Ann. de l'Inst. Pasteur. **14**: 369, 1900.
26. Landsteiner: Centralbl. f. Bakteriol. **25**: 346, 1905.
27. McCartney: Am. J. Physiol. **63**: 207, 1923.
28. Mayer: Klin. Wchnschr. **1**: 1142, 1922.
29. Vogt: Klin. Wchnschr. **1**: 1144, 1922.
30. Godlewski: Arch. f. Entwicklungsmechanik **33**: 233, 1911; **34**: 196, 1912.
31. Herlant: Anat. Anz. **42**: 563, 1912.
32. Oslund, R. M.: Physiologic Effects of Spermatoxin in Rats, Rabbits and Guinea-Pigs, J. A. M. A. **86**: 1755 (June 5) 1926.

indirect general reaction of the whole body. I myself have not, up to the present time, been able to find any spermotoxic reaction of the serum of any sterile woman or even of patients infected with typhoid or with *Bacillus coli*. Peham [33] also denies sperm immunity, at least from a serologic point of view. Wiesbader [34] has achieved sterilization of mice by injection of the serum of castrates, and likewise believes that such sterility is due to a parenteral protein action. It has, however, been shown that hormonal sterility (Vogt [35]) is possible; for instance, by repeated injections of insulin or ovarian or placental extract. All these facts seem to me to mean that the sterility produced by the various experiments with sperms is not a sperm immunity reaction but an action on the general metabolism or on the endocrine system or perhaps on the ovum in particular, since the ovary is especially sensitive to the general physical health of the individual, as has been brought out under the discussion of diet.[36]

Aside from all these considerations, it seems to me even more unlikely that sperm immunity, or what passes for sperm immunity, is of any great importance or frequency, at least as far as human beings are concerned, since sperm immunity can occur only when very frequent intercourse takes place. This, however, is seldom the case with the childless woman who consults us, since in most instances she has been married several years, so that sexual relations have become more or less regulated and are no longer unduly frequent. With my patients, at any rate, too frequent sexual congress was present in only two cases, and even in these couples, in whom intercourse took place two and three times a night in one couple, and five and six times a week in the other, microscopic tests did not point to sperm immunity, and the serum of the wife did not affect the sperms any differently than did normal blood serum, in which I have found the spermatozoa to remain actively motile for hours.

PSYCHIC CAUSES OF STERILITY

The tremendous influence of the psyche on the body and its functions is well known.[37] At the same time, there are many objections to explaining undetermined cases of sterility as the result of psychic influences. Psychic factors can easily cause disturbances of menstruation and evoke vaginal discharge and many other gynecologic symptoms, but they will hardly act directly on either ovum or spermatozoon. I believe that the cases of pregnancy following rape and of conception occurring in women to whom sexual intercourse is abhorrent bear this out.

When one considers all the various so-called obscure factors of sterility which have been discussed so far, it appears possible that any one of them may cause lowered fertility, although it seems to me at least that they will but rarely represent the actual sought-for cause of the infertile marriage. Were it otherwise, our number of unexplained cases of disturbed fertility should have been much higher in the recently intensively studied cases of disturbed fertility, a report of which will appear soon.[38] The male cells were thoroughly studied in these cases, and although the female cells cannot be judged directly, it would seem from our studies that abnormal ova are not common in women who are perfectly normal clinically, i. e., who have a normal menstrual history, normal cervical and vaginal secretions, and normal physical conditions.

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33. Peham: Deutsche med. Wchnschr. **51**: 2119, 1926.
34. Wiesbader: Arch. f. Gynäk. **132**: 167-214, 215, 217-228, 230, 234, 1927.
35. Vogt: Arch. f. Gynäk. **132**: 189, 1927.
36. Moench, G. L.: M. Times **57**: 283, 1929.
37. Schwarz, Oswald: Psychogenese und Psychoterapie Koerperlicher Symptome, Vienna, Springer, 1925.
38. From research work done in part under a grant from the Committee of Maternal Health.

SIGNIFICANCE OF RENAL COUNTERBALANCE IN SURGICAL TREATMENT OF RENAL LESIONS

PARTICULARLY WHEN UNILATERAL

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A recent editorial in THE JOURNAL,[1] inspired by the published results of experimental work on repair hydronephrosis,[2] emphasized the potential ability of renal tissue to undergo repair. Admittedly, the future advance of renal surgery largely depends on the surgical appreciation of this fact. Conservation of renal tissue must ever be the chief objective. Nephrectomy, except for such conditions as tuberculosis, malignant disease and acute fulminating infections, must be the procedure of last resort, even though it is often the safest and simplest. No theory of counterbalance of two kidneys can replace this principle in practice. Success or failure in any condition, with such exceptions as just mentioned, depends on the efficiency or inefficiency of the surgeon in removing the primary and secondary causes of injury, and radical removal by nephrectomy is often the worst failure of all in the surgical treatment of many purely unilateral diseases, particularly hydronephrosis.[3]

There remains a doubt as to how far a surgeon is justified in going in the application of practical conservation. In bilateral hydronephrosis there is almost no limit to the surgical preservation of renal tissue by plastic repair procedures and removal of obstructive conditions.[4] But in unilateral hydronephrosis the same degree of relative repair cannot be expected nor is it as obligatory. The ideal surgery for unilateral hydronephrosis is successful repair whenever a kidney at least half as good as its mate is possible, and initial nephrectomy whenever impossible. Secondary nephrectomies because the attempt to save the diseased side has failed should be the exception, and the primary removal of a potentially good kidney, even though not so good as its mate, is poor surgery.

How can a surgeon always choose aright in borderline cases? Aside from the technical details of the repair procedure about which there is bound to be argument, when should it be attempted and when not? The size of the sac is the poorest possible guide in such a case. Relative functional studies are not much help. The degree of functional improvement with a retention ureteral catheter or after nephrostomy is helpful, as is also the estimation of the amount of renal parenchyma as indicated by the x-rays or after operative inspection and palpation. The extent and severity of a complicating infection is of utmost importance. The renal injury

1. Functional and Pathologic Renal Changes and Experimental Nephritis, editorial, J. A. M. A. **93**: 1889-1890 (Dec. 14) 1929.
2. Joelson, J. J.; Beck, C. S., and Moritz, A. R.: Renal Counterbalance, Arch. Surg. **19**: 673-711 (Oct.) 1929.
3. Hinman, Frank: Nephrectomy, Surg. Gynec. Obst. **45**: 347-358 (Sept.) 1927.
4. Hinman, Frank: Obstructive Hydro-Ureteral Angularity with Hydronephrosis in Children: Surgical Treatment, Arch. Surg. **18**: 21-58 (Jan.) 1929.

of pyelonephritis may be more permanent and greater than that of back pressure. When there is no function and little if any parenchyma, the problem solves itself; but when there is improvement in function with little parenchyma or considerable parenchyma without much function, no two surgeons will apply in every case the same line of teatment. By nature some are too radical, others altogether too conservative, and it would be difficult occasionally to choose the one or the other in the best interest of the patient.

Experimental observations have been used as a guide in the solution of this problem. The obstruction of a ureter can be removed and the degree of renal repair in relation to the period of obstruction and the degree of injury produced by it can be determined. The known facts of experimental work in repair hydronephrosis that bear on the surgical problem presented here may be grouped into those that show:

1. The degree of hydronephrosis per period of complete ureteral obstruction and the degree of compensatory hypertrophy of the opposite kidney per similar period of obstruction or after nephrectomy.

2. The repair ability of the different degrees of hydronephrosis on removal of the obstruction under the following conditions:

(*a*) With opposite nephrectomy:
   1. Surgically at the time of repair.
   2. Gradually by partial ureteral obstruction or partial renal resections.

(*b*) With the opposite kidney undisturbed:
   1. For short periods.
   2. For long periods.

HYDRONEPHROTIC ATROPHY

Complete ureteral obstruction almost invariably produces progressive hydronephrosis in all experimental animals except the cat. The atypical venous system of this animal may account for the occasional development of primary atrophy. The hydronephrotic atrophy progresses to complete destruction of the renal parenchyma and a sac of fluid of low specific gravity and weak chemical reaction (urea, chloride, and the like) with a thin, paper-like connective tissue wall. Progressive destruction is not diffuse. That portion with larger blood vessels is the more resistant, so that a group atrophy with group hypertrophy is early manifested, those portions to which the blood supply is relatively little affected by the back pressure attempting a response to the greater demand for more work as a result of loss of function of those portions most affected. The hydronephrotic atrophy itself in the circumscribed area shows progressive tubular dilatation, then loss of convolutions, foreshortening and atrophy, the glomerulus disappearing last. In later stages practically all tubular elements have disappeared, only scattered but often well preserved glomeruli persisting in thicker portions of the flattened sac wall, grouped about a few larger vessels, and even these finally atrophy completely. This end-stage is reached at periods varying with the size of the renal mass at the beginning. In rats about 120 days is required, in rabbits about 240 days, in cats about a year, and in dogs several months, over a year. But tubular atrophy occurs much earlier than complete glomerular atrophy and the possibility of repair depends on the hypertrophy of the tubular remnants. Possibilities of repair to the degree of any functional value have disappeared long before complete tubular atrophy.

COMPENSATORY HYPERTROPHY

Removal or ureteral obstruction of one of a normal and equal pair of kidneys doubles the amount of work of the other. Every normal kidney is capable of more work on demand but its reserve power is not equal to double the customary amount. It takes over double duty efficiently only after an hypertrophy of its secreting units, the portion showing the most growth relatively being the convoluted tubular. The time required for such a compensatory change will vary with the size of the kidney and the suddenness of the demand. If too sudden and excessive, the initial injury will delay compensatory hypertrophy. It is estimated that it takes about forty-five days for this anatomic change to become complete in the small kidney of a white rat, and even then the reserve ability of the compensatory kidney is not equal to that of a normal pair.

Compensatory hypertrophy is not limited as a diffuse change to one of a pair of kidneys with injury of its mate. Injuries of portions of a kidney will occasion hypertrophic changes in less or uninjured portions of itself as well as its mate. It is the fundamental response of renal tissue to an increase of stimulation. Transplant a dog's ureter into the duodenum and the two kidneys will undergo, in the course of a few months, an almost equal degree of compensatory hypertrophy.

A striking illustration of renal hypertrophy is also furnished by partial renal resections, it having been shown experimentally that more than three fourths of the total renal mass may be removed and the quarter remaining will have hypertrophied to the point of efficiency, provided the resection has been done in segments so as to allow of a gradually increasing demand on the remnant.

REPAIR HYDRONEPHROSIS

The outstanding consideration in comparing the experimental results of the repair of hydronephrosis is the elimination of infection as a complication. Extensive pyelonephritis slows or stops secretion, reduces back pressure, and thus may variously modify the result of ureteral obstruction. Likewise, infection may influence largely the repair process after relief of obstruction. Yet practically every clinical problem of the renal surgeon is more or less complicated by infection and demands consideration in the choice of a conservative or radical line of treatment. Experimental conditions therefore are rarely duplicated clinically, and they are of value only as an indication of clinical possibilities.

The hardest test of renal repair is to place the full burden of excretion on a kidney until then functionless by reason of a complete ureteral block. That a fourteen day hydronephrosis suddenly called on to do total work by opposite nephrectomy will recover in time full efficiency is a remarkable example of repair possibilities. If the opposite kidney is not removed until several days or weeks after the obstruction, a twenty-one day or longer hydronephrosis may recover function and the animal survive and, if the opposite kidney is gradually removed as by a partial obstruction of the ureter, even a thirty day or longer hydronephrosis will so repair and hypertrophy as to carry on total function.

Experiments of the character just cited, when considered as a whole, indicate quite clearly that the degree of renal hypertrophy reached by any mass of renal

tissue is dependent on several factors, of which may be mentioned:

1. The potential ability to undergo hypertrophy on demand as influenced by the injury of back pressure or of infection.
2. The amount and permanence of the extra stimulation that causes the hypertrophy.
3. The nature of application of this stimulation. Maximal hypertrophies undoubtedly occur with gradual increase of stimulation, an amount of work ultimately being accomplished which, if suddenly demanded, would completely overwhelm potential possibilities.

These facts also suggest certain considerations in connection with renal repair of hydronephrosis if the opposite kidney is undisturbed, an experimental condition that approaches the clinical problem of a unilateral hydronephrosis or injury. In an early hydronephrosis (from fourteen to twenty-one days), in view of a compensatory hypertrophy of the opposite kidney not being complete, stimulation will be greater than in a late hydronephrosis (from thirty to sixty days), when there is complete or almost complete compensation of its mate. Aside from differences in the potential abilities of the early and late stages, the same relative degrees of repair would not occur because of the differences in the nature and amount of stimulation. A two to three weeks' hydronephrosis in a dog will undergo a considerable degree of permanent repair, not as much of course as in the experiment in which the opposite kidney is removed. But a four to six weeks' hydronephrosis, a period that has produced an almost complete compensatory hypertrophy of its mate, will have little if any extra stimulation. Its injury has been so extensive that an extra demand only will repair it and its maximal repair would follow a gradual increase of this demand as in the experiment with partial obstruction of the ureter of its mate. Opposite nephrectomy at the time of ureterocystoneostomy would overwhelm it and the animal would die. Whatever repair is instituted in such a kidney, which of course would be normally stimulated as it gets blood of the same composition as its hypertrophic mate, which is doing all the work and consequently would undergo some repair, would be minimal and in the course of time apt to diminish in efficiency since there would be no gradual increase of stimulation. Experimental work with thirty to ninety days' hydronephrosis in dogs confirms this assumption. In from one to two years there is practically complete atrophy of the earlier repair nodules. These are the period hydronephroses (thirty to sixty days) that most nearly approach the conditions presented in the clinical problem of proper treatment of the borderline cases of unilateral hydronephrosis already referred to. The twelve to nineteen day periods simulate clinical conditions of an early, uninfected hydronephrosis that should be repaired surgically if possible.

COMMENT

In view of these experimental facts, which are in no way unconfirmed by the results of Joelson and his co-workers, who limited their study to twelve to nineteen day periods of hydronephrosis, in spite of the doubt voiced by the editorial in THE JOURNAL inspired by their results, and aside from all theories of renal counterbalance which they have put under question, I maintain that in every borderline case of unilateral hydronephrosis—not much parenchyma, low function, little if any improvement with a retention catheter, and possibly chronic infection—the kidney should be removed without any attempt at repair, provided the opposite kidney is healthy and hypertrophic. On the other hand, in bilateral abnormality every possible attempt to preserve a kidney with the same or even much greater degree of injury should be made.

The facts of the experimental study of repair hydronephrosis point quite clearly to this conclusion. It makes little difference what theoretical interpretation one cares to make of them. The question of disuse atrophy is purely hypothetical and, whether accepted or not, does not alter in any way the practical application of the facts. The renal alterations will vary with variations in the factors controlling the injury and the repair. The changes are passive. Secretory units have no volition in the matter. There is no active competition in the sense that the right and left sides are trying to drive each other out of business. The injury causes renal atrophy (anemic, pressure, toxic) with loss of function (disuse). If extensive, the remaining renal mass hypertrophies because of the extra work. If the injury is removed, repair will occur, broadly speaking, in proportion to the extent of the injury and the demand for repair. An early hydronephrosis (from twelve to nineteen days, experimentally) has good possibilities and with removal of its cause of obstruction is given continuous, gradually increasing stimulation that produces permanent repair. The readjustment is cooperative. If injury, such as infection or partial obstruction because of unsuccessful surgery, persists, the repair is not permanent and the readjustment becomes competitive and a gradual atrophy may result. A late hydronephrosis (thirty to sixty days, experimentally) has poor possibilities of repair and is not given an opportunity to make the most of them because of little or no increase of stimulation. The readjustment from the start is competitive and a gradual atrophy the result.

The term renal counterbalance covers sufficiently well the conception of alterations of the renal mass of the two kidneys from hypertrophy and atrophy as the result of injury and repair. It seems more fit than renal compensation. The two types of readjustment may be termed cooperative and competitive, even and uneven, or proportional and disproportional counterbalance, the whole idea being that in a cooperative type the secretory units of the two kidneys respond more or less equally to the same stimulation and the ability of continued response on the injured side remains because the injury has been removed even though it may have only 10 secretory units to its fellow's million. In a competitive type the response of each individual unit on the repair side is slower and weaker than on the healthy side. The smaller number of units function inefficiently for some time because the injury persists or full repair has not occurred in those secretory units remaining that are susceptible of repair. The relative number of secretory units of the two sides has nothing whatever to do with the counterbalance. Similar readjustments occur in the substance of a single kidney with or after removal of localized injury. An infantile kidney with so few units that it could not carry on total function does not atrophy. It has undergone a cooperative type of adjustment with its big, capable mate. This raises the question whether a surgeon is justified in attempting to repair a unilateral injury with a normal, healthy kidney on the other side unless he expects to get a repair that would enable this kidney to do total function if ever required, and no such degree of repair can ever be hoped for if the opposite kidney has undergone complete compensatory hypertrophy.

As yet there is no test of renal work that will measure complete unilateral counterbalance or will indicate reserve power, the potential ability of repair and hypertrophy or the permanence of atrophy. These changes can only be surmised. Mistakes are inevitable. But, in spite of these limitations, the many and complicating factors which control renal readjustments of structure and function following injury and the removal of injury, which, for want of a better term may be called counterbalance, are worthy of consideration and an effort at accurate evaluation and measurement.

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CONTINUOUS RECORDING OF THE HEART RATE DURING OPERATIONS *

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The behavior of the heart during operations has always been of vital interest to surgeons as an index to the general condition of the patient. Especial attention has been paid to the rate and quality of the pulse as well as to the blood pressure. The technic available heretofore has consisted largely of the palpation of the radial or temporal pulse by the anesthetist. The surgeon is informed of changes in the pulse only when a dramatic significant alteration has occurred.

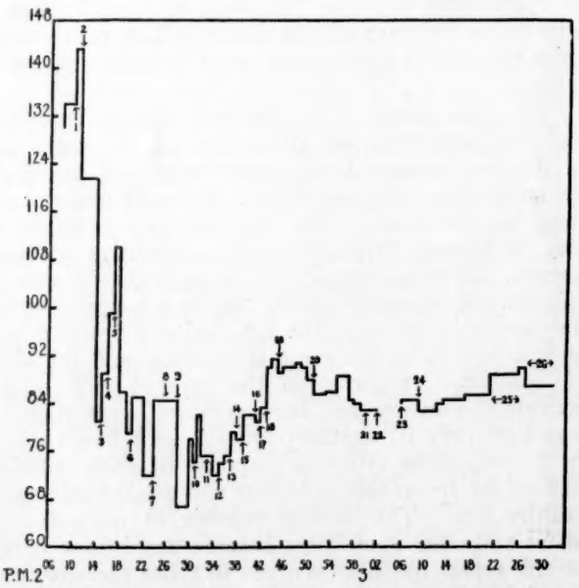

Chart 1.—Heart rate during operation for carcinoma of the esophagus: 1, introduction of bougie; 2, gas anesthesia started; 3, ether started, open cone; 4, coughing for past minute; 5, breathing heavily; 6, patient is turned on his left side on the operating table; 7, coughing; 8, not fully anesthetized; 9, skin incision; 10, skin incision of foot for intravenous injection; 11, erector spinae incised, moderate hemorrhage; 12, intravenous injection started; 13, rib resection begun; 14, stripping of periosteum; 15, cutting of rib, pleural leak; 16, pleura being stripped; 17, deep cyanosis, anesthesia stopped; 18, cyanosis disappearing, ether resumed; 19, third rib cut, pleura wide open; 20, pleura wide open; 21, manipulation of esophagus; 22, manipulation of esophagus; 23, new count started because of instrumental disturbance; 24, closing of wound; 25, injection of 400 cc. of dextrose solution; 26, operation ended; loss of blood moderate.

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One of us [1] has devised an instrument, the cardiotachometer, by means of which the heart rate can be continuously recorded irrespective of the posture or degree of activity of the subject. The principle of the apparatus can be briefly described. The action current of the heart is led off from the chest by a pair of small electrodes. Ordinary green soap is used to improve the contact between the skin and the electrodes. Wires, which may be several hundred feet long, lead from the electrodes to a specially constructed radio amplifier which amplifies the action current about 6,000 times. The amplified current operates a relay system which in turn actuates an electromagnetic counter on which each heart beat is automatically recorded. A graphic registering device which marks each heart beat on a moving tape of paper may be attached as well.

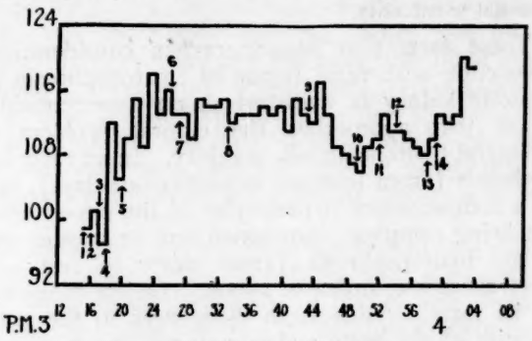

Chart 2.—Heart rate during cholecystectomy; ether started at 3:03; 1, incision started; 2, gallbladder exposed; 3, pulling on gallbladder; 4, pulling on gallbladder; 5, dissecting out of gallbladder; 6, gallbladder freed from its bed; 7, considerable bleeding; 8, dissecting out of gallbladder; 9, gallbladder out, sewing of bed; 10, appendectomy; 11, appendix out; 12, suturing of peritoneum; 13, anesthesia stopped; 14, suturing of abdominal muscles.

The ticking of the counter with each beat of the heart is clearly audible, so that the surgeon can hear the changes in rate while he operates. We are now trying to develop a registering device which will draw a continuous curve of heart rate on a screen easily visible to the operator.

The use of this instrument offers several decided advantages. Palpation of the pulse is a subjective method liable to error, which makes available only occasional sample readings of the heart rate and gives an imperfect picture of its constant fluctuations. We observed frequent discrepancies between the true heart rate recorded by the cardiotachometer and the rate reported by the anesthetist. As a rule the rates determined by palpation were too low. Similar errors in the pulse rate counted by the anesthetist were reported by Lennox, Graves and Levine,[2] who used electrocardiographic control. The cardiotachometer offers the advantages of accuracy, as well as the possibility of obtaining continuous records of the heart rate for long periods of time, under all operative procedures and manipulations.

We have employed the cardiotachometer to record the heart rate during anesthesia and operation, and at this time present our preliminary results. Our data are of value chiefly in demonstrating the value of this new method; they are as yet insufficient to allow of far reaching conclusions. It is apparent that the method will be of great service to the operator as a guide to

1. Boas, E. P.: The Cardiotachometer: An Instrument to Count the Totality of Heart Beats Over Long Periods of Time, Arch. Int. Med. **41**: 403 (March) 1928.

2. Lennox, W. G; Graves, R. C., and Levine, S. A.: An Electrocardiographic Study of Fifty Patients During Operation, Arch. Int. Med. **30**: 57 (July) 1922.

the condition of the circulation, and that it will make possible physiologic studies on the effect of anesthesia, and various specific operative procedures on the heart.

METHOD

For details of the operation of the cardiotachometer the reader is referred to the original paper.[1] Here we will consider only such adaptations as were found helpful in the operating room. The lead wires from the patient to the amplifier should be long enough to reach from the anesthesia room to the operating room. The cardiotachometer itself is set up in the operating room on a cart, which may be wheeled about. The lead wires should be covered with rubber, so that they will not get wet. The electrodes are strapped to the chest with adhesive tape, one over the sternum at the second rib and one over the apex of the heart. If this interferes with the operative field, one may be placed in each axilla or elsewhere on the chest. Extraneous electric currents at times disturb the regular operation of the apparatus, particularly if they occur near the input of the amplifier. In such cases it may be necessary to locate the cardiotachometer outside the operating room. The use of the electrical knife during operations makes impossible the operation of the cardiotachometer during the period of its employment. As a rule we commenced recording the heart rate before the anesthesia was started, and continued to the end of the operation.

At this time we report briefly on a study of nineteen cases. Thirteen operations were performed under general anesthesia, three under local and three under spinal. The operations comprised two cholecystectomies, three prostatectomies, two bladder operations, two suboccipital decompressions, one herniotomy, two operations for undescended testicle, one appendectomy, three operations on the lung, one operation for perinephric abscess, one for carcinoma of the esophagus, and one subtotal thyroidectomy. The patients who were operated on had normal hearts, as far as could be ascertained by clinical examination.

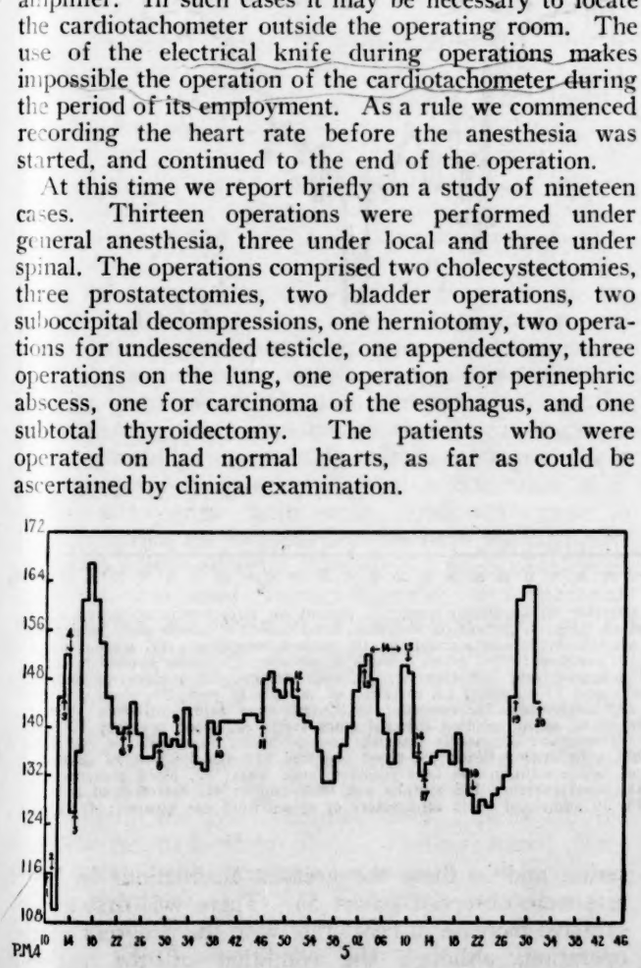

Chart 3.—Heart rate during operation for undescended testicle: 1, patient lying in crib; 2, gas started, patient fighting; 3, ether started, patient crying; 4, ether cone started, patient fighting; 5, still fighting; 6, patient moved to operating table; 7, skin incision; 8, isolation of cord; 9, sac open; 10, isolation of vas deferens; 11, freeing of peritoneum; 12, pulling on testis; 13, packing in peritoneum; 14, sewing peritoneum of sac; 15, patient coming out of anesthesia; 16, patient under deeper anesthesia; 17, Bassini sutures; 18, anesthesia stopped; 19, skin sutures; 20, operation ended.

Chart 1 represents the curve of the heart rate during an operation for carcinoma of the esophagus. A posterior approach with resection of the third, fourth and fifth ribs was employed. The chart shows clearly the preoperative excitement, the sudden drop in rate with the first inhalation of ether, and the relatively steady rate once anesthesia was well established, in spite of rather radical operative maneuvers. This is typical of many of the cases studied. The rise in heart rate during the excitement stage of the anesthetic is characteristic, and, in not a few cases, as for instance in the one depicted in chart 1, it by far exceeds the maximum rate during operation. The dramatic drop in rate induced by the first inhalation of ether is well known,

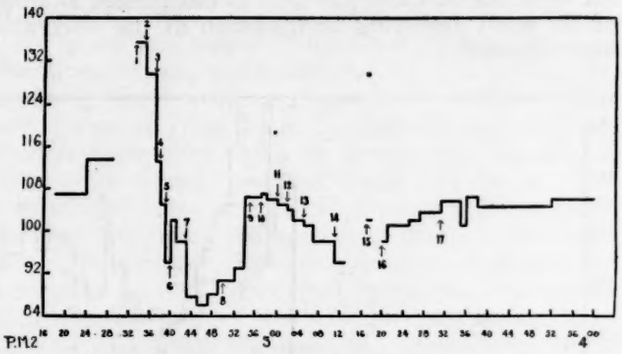

Chart 4.—Heart rate during resection of bladder for carcinoma: 1, patient in operating room, blood pressure 170 systolic and 90 diastolic; 2, patient sitting, preparation for spinal tap; 3, lumbar puncture; 4, spinal fluid withdrawn; 5, procaine hydrochloride injected; 6, patient lying down; 7, skin incision, blood pressure 88 systolic and 72 diastolic; 8, blood pressure 105 systolic and 85 diastolic; 9, patient vomited, blood pressure 100 systolic and 72 diastolic; 10, both ureters exposed; 11, blood pressure 120 systolic and 90 diastolic; 12, bladder opened; 13, blood pressure 116 systolic and 85 diastolic; 14, cutting with electrical knife (whenever current is on, machine stops); 15, new start; 16, new start; 17, tumor out, blood pressure 116 systolic and 80 diastolic; 18, blood pressure 110 systolic and 60 diastolic.

and is undoubtedly a reflex vagus effect due to the irritation of the respiratory mucous membranes.

During the operation, once the patient is well anesthetized, the heart rate is remarkably stable and is little influenced by manipulation of tissues and viscera. In many instances the surgeon deliberately pulled on a viscus such as the gallbladder without inducing any characteristic alteration in the heart rate. This stability of the heart rate has been noted by others. Miller [3] states that "the most severe surgical manipulations may regularly be performed without marked change in either the blood pressure or the pulse rate." Wachsmuth and Eismayer [4] made similar observations. They tested the matter further on anesthetized dogs and found that pulling on the mesentery, liver or peritoneum, removal of the gallbladder, compression of the aorta or the induction of pneumothorax exerted no direct influence on the rate or rhythm of the heart. They have shown that the electrocardiographic changes during operations (shifting of the pacemaker, conduction disturbances, paroxysmal tachycardia) described by so many authors [5] are due primarily to the anesthetic and not to the operation, although Meyer and Reinhold [6] attribute them largely to preoperative digitalization. Marvin,[5] however, could not confirm such a digitalis effect. Reissinger [5]

3. Miller, A. H.: Blood Pressure Guides During Anesthesia and Operation, Am. J. Surg. (anesthesia supp.) **35**: 34 (April) 1921.

4. Wachsmuth, W., and Eismayer, G.: Ueber den Einfluss operativer Eingriffe auf die Herztätigkeit, Deutsche Ztschr. f. Chir. **209**: 145, 1928.

5. Lennox, Graves and Levine (footnote 2). Reissinger, H.: Elektrokardiographische Untersuchungen bei der chirurgischen Handlung, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **40**: 504, 1927. Rehn, E.: Herzfunktion und Operationstrauma, Deutsche Ztschr. f. Chir. **203-204**: 1, 1927. Frommel, E.: Les perturbations du rhythme cardiaque au cours de la narcose au chloroforme, Schweiz. med. Wchnschr. **57**: 490 (May 21) 1927. Marvin, H. M., and Pastor, R. B.: The Electrocardiogram and Blood Pressure During Surgical Operation and Convalescence, Arch. Int. Med. **35**: 678, 782 (June) 1925.

6. Meyer, Erich; and Reinhold, A.: Ueber die Behandlung des Herzens mit Digitalis vor Operationen, Klin. Wchnschr. **4**: 1948 (Oct.) 8) 1925.

observed slowing of the pulse from 100 to 80 on pulling down the liver, but Rehn [5] showed that this was not a constant effect; that, in fact, milder stimuli do not act reflexly on the heart during anesthesia but that stronger effects, such as pulling on the kidney pedicle, may induce slowing of the pulse from 135 to 70 as well as shifting of the pacemaker. He further suggests that reflex slowing of the heart occurs more often in so-called vagotonics, particularly in patients with gastric or duodenal ulcer, and that in them reflex slowing of the heart following manipulation of the viscera is more common.

heart rate, which became still more evident when the patient reclined on the operating table (chart 4). In one case the rate dropped from 133 to 86, and in another from 148 to 91 within twelve minutes. During the operative procedures the rate was rather stable except that vomiting or restlessness on the part of the patient caused a temporary acceleration of the heart rate.

Removal of the prostate gland under gas-oxygen, and in one case under spinal anesthesia, resulted in rather high and fluctuating heart rates. Two operations for subtemporal decompression were included in the

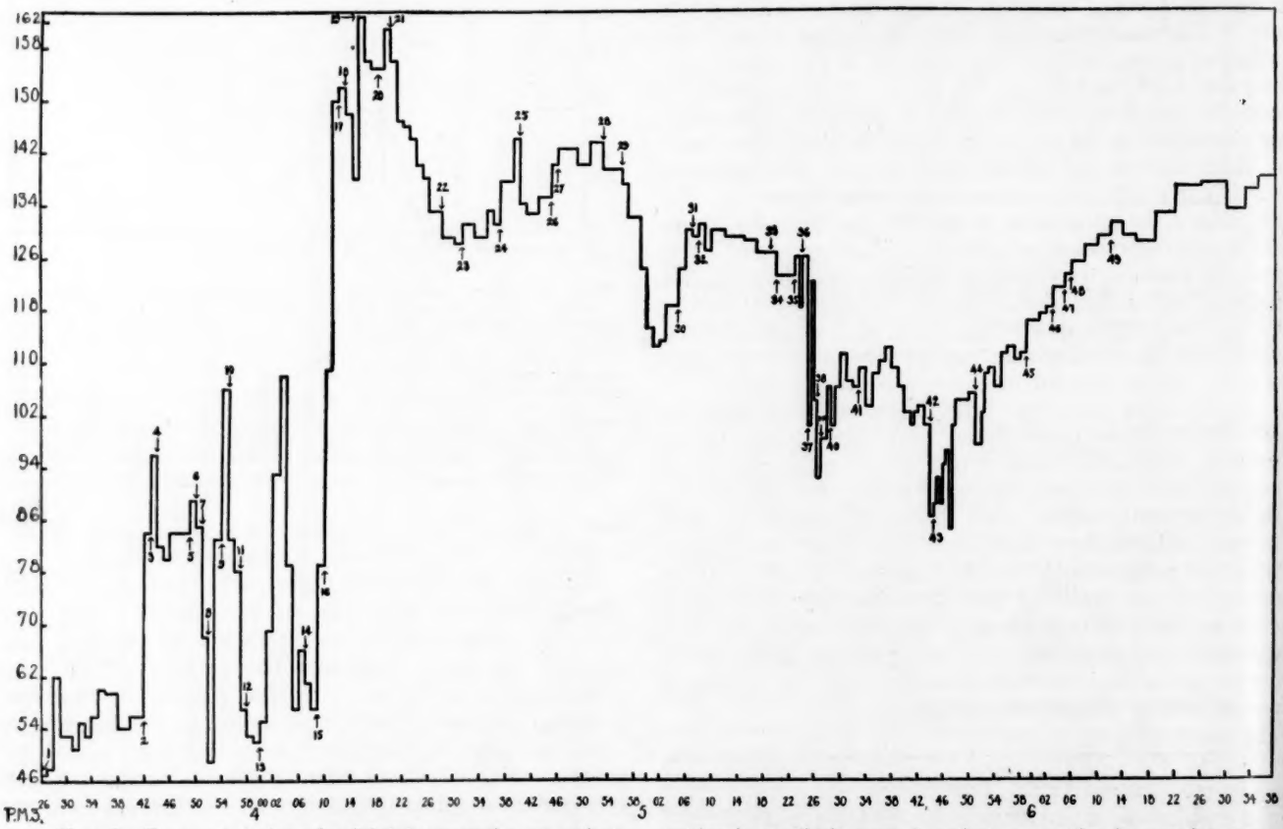

Chart 5.—Heart rate during suboccipital decompression: 1, patient on stretcher in anesthesia room; 2, patient on stretcher in operating room, complained of headache; 3, transferred to operating table; 4, patient moved on table; 5, patient on abdomen, head down; 6, needle with local anesthesia inserted, great pain; 7, gas-oxygen anesthesia started; 8, ether started; 9, patient struggling; 10, patient struggling; 11, patient quiet; 12, blood pressure 130 systolic and 95 diastolic; 13, muscular relaxation; 14; coughing: ether given through nasal tube; 15, iodine applied to scalp; 16, placing of towels; 17, anesthesia not complete; 18, blood pressure 135 systolic and 100 diastolic; 19, skin incision; 20, incision of foot for intravenous injection; 21, light anesthesia; 22, blood pressure 130 systolic and 95 diastolic; 23, insertion of cannula in vein; 24, blood pressure 150 systolic and 87 diastolic; 25, anesthesia light, patient struggling; 27, trephining; 28, rongeur; 29, intravenous saline injection started; 30, exposure of cerebellum, margin of foramen magnum removed; 31, 56 cc. of saline solution injected since start; 32, blood pressure 124 systolic and 80 diastolic; 33, blood pressure 140 systolic and 90 diastolic; 34, rongeur; 35, needle inserted into ventricle; 36, needle in ventricle; 37, drawing off of cerebrospinal fluid, pressure on posterior fossa; 38, still withdrawing fluid; 39, blood pressure 122 systolic and 79 diastolic; 40, incision of dura, no more fluid flowing, 40 cc. removed; 41, 400 cc. of saline solution has been injected since start; 42, blood pressure 140 systolic and 85 diastolic; 43, manipulation of brain; 44, cisterna opened; 45, blood pressure 135 systolic and 90 diastolic; 46, insertion of a brain needle into cerebellum; 47, insertion of a brain needle into cerebellum; 48, 30 additional cubic centimeters of spinal fluid has escaped; 49, up to now, 600 cc. of saline solution has been injected.

We found that, with the patient under the influence of ether, handling of the esophagus, the development of a pneumothorax or pulling of the testicle, a hernial sac or the gallbladder caused no definite change in the heart rate. Fluctuations in rate were closely linked with the intensity of anesthesia; when the anesthesia became light, the heart was accelerated. In two patients who were very sick and toxic, one with peritonitis secondary to appendicitis, and one with lung abscess, the initial rapid heart rate steadily mounted during the course of operation.

In the patients who received spinal anesthesia there was a marked tachycardia as they were brought into the operating room and when the lumbar puncture was performed. With the removal of spinal fluid and the injection of the anesthetic there was a marked drop in

series, and in these the greatest fluctuations in heart rate were observed (chart 5). There was first a progressive increase in heart rate with the progress of the operation, although the condition of the patients remained good. Certain manipulations seemed to exert a direct effect on the rate. Retraction of a cerebellar lobe regularly slowed the heart. Trephining and the use of the rongeur had no constant effect. Withdrawal of fluid from the ventricles produced slowing, and insertion of a brain needle into the cerebellum caused acceleration. Throughout, the rate was very labile.

A most interesting case was one of subtotal thyroidectomy for exophthalmic goiter. The steady and extreme acceleration of the heart rate during the operation was striking. In this case we followed the heart rate for seventeen hours after operation and were

astounded at the marked drop to almost normal figures (84) during the first night. It seemed as though with the removal of the gland the accelerating influence on the heart was immediately withdrawn. We withhold further comment, however, until we have had the opportunity of studying more cases.

This preliminary report is presented to demonstrate the wide field of usefulness of a continuous record of the heart rate, obtained by means of the cardiotachometer during operations.

STREPTOCOCCI FROM SCARLET FEVER, ERYSIPELAS AND SEPTIC SORE THROAT

EFFECT ON CHOCOLATE AGAR: PRELIMINARY REPORT *

RUTH TUNNICLIFF, M.D.
CHICAGO

In studying colonies of hemolytic streptococci on chocolate agar, I find that typical cultures from erysipelas produce a vivid green after from twenty-four to forty-eight hours' growth, while those from scarlet fever produce no color change except occasionally a slightly greenish tinge after several days' incubation. Twenty-five cultures from scarlet fever, thirteen from erysipelas and forty from other sources have been so examined. Most of these cultures have been examined immunologically as well, generally by the opsonic method but many also by agglutination and toxin neutralization tests to determine their specificity. The forty strains from sources other than scarlet fever and erysipelas did not belong immunologically to the scarlet fever group; some turned chocolate agar green, others did not. In examining cultures of scarlet fever and erysipelas streptococci isolated a long time, it is necessary to grow them on a blood agar plate to make sure that the original colonies have not changed; and, if they have changed, the different types of colonies must be examined immunologically to determine whether they still belong to the original group.

The chocolate agar is prepared by adding 8 cc. of defibrinated sheep blood to 150 cc. of melted and cooled Liebig's beef extract plain agar, p_H 7.0; heating the mixture to 90 C; cooling to 50 C., and pouring the mixture into plates. It is necessary to mix the blood thoroughly with the agar or the coagulated blood will sink beneath the agar. Human blood appears to give the same results as sheep blood. Freshly poured plates are streaked with streptococcus culture and incubated at a temperature of 34 C. The green color is rarely produced at 36 C, but occurs at room temperature, generally a little more slowly than at 34 C. The plates are examined at the end of from twenty-four to seventy-two hours' growth, but the same appearance persists, except occasionally for a slight greening by some streptococci which do not change it in from twenty-four to seventy-two hours.

This difference in color reaction on chocolate agar of streptococci from scarlet fever and erysipelas appears to be further evidence of their biologic difference and is in agreement with the specificity of the immunity tests (opsonification, agglutination and toxin neutralization) of these two forms of streptococci.

* From the John McCormick Institute for Infectious Diseases.

STREPTOCOCCI FROM SEPTIC SORE THROAT

I have examined by the opsonic method [1] a few typical strains of streptococci isolated during epidemics of septic sore throat in Chicago (Davis), Lee, Mass. (Robinson), and Baraboo, Wis. (Frost and Stovall), and have found that they belong to neither the scarlet fever nor the erysipelas groups. The scarlet fever streptococcus immune horse serum had a high opsonic content for scarlet fever streptococci but not for streptococci from erysipelas and septic sore throat. This serum was furnished by Dr. Benjamin White of the Massachusetts Antitoxin and Vaccine Laboratory, Boston. The erysipelas streptococcus immune rabbit serum obtained from Dr. K. E. Birkhaug showed a high opsonic content for erysipelas streptococci but not for those from scarlet fever and septic sore throat. The strains from septic sore throat produce a bright green on chocolate agar, differentiating them from scarlet fever streptococci. Moreover, on this medium after incubation at 34 C. for from twenty to twenty-four hours, typical cultures of these three streptococci produce colonies which are distinct.[2] Scarlet fever streptococcus colonies are slightly granular and conical; erysipelas colonies are smooth and convex, later becoming flat and rough, while septic sore throat streptococci are conical or convex, very rough, indented and gun metal in color, and may show a blister-like top. This is true of old as well as of recently isolated septic sore throat streptococci and of those which have ceased to produce large moist colonies on enriched blood agar. It may be of interest to note that in 1920 I [3] pointed out that on goat blood agar the colonies of streptococci from erysipelas were different from those from scarlet fever, the erysipelas colonies being, as a rule, larger and flatter than those from scarlet fever.

These observations indicating that the streptococci from scarlet fever, erysipelas and septic sore throat are distinct organisms are not in accord with the conclusions of Wheeler [4] that streptococci from septic sore throat cannot be separated from those from scarlet fever and erysipelas by toxin production and agglutination, or of Williams,[5] that the toxins from streptococci from septic sore throat are neutralized by their scarlet fever antitoxin.

Crowe and Thompson [6] have made a large number of observations on the colony formation and color changes chiefly of nonhemolytic streptococci on carefully prepared heated blood agar. They incubate their cultures at blood heat, which may account for their erysipelas culture not causing any change in color on their medium.

SUMMARY

Hemolytic streptococci from typical cases of erysipelas produce a bright green on chocolate agar after from twenty-four to forty-eight hours' growth, while those from scarlet fever cause no change or occasionally a slight greening of the medium after several days' growth.

1. Tunnicliff, Ruth: The Identification of the Streptococci of Scarlet Fever, J. A. M. A. **87**: 625 (Aug. 28) 1926.
2. The colonies were studied on a Leitz binocular culture microscope, with artificial illumination from above.
3. Tunnicliff, Ruth: Further Studies on the Specificity of Streptococci: II. Immunologic Study of Hemolytic Streptococci of Erysipelas, J. A. M. A. **75**: 1339 (Nov. 13) 1920.
4. Wheeler, Mary W.: Streptococci from Cases of Epidemic Septic Sore Throat, Scarlet Fever and Erysipelas, J. Prev. Med. **4**: 1 (Jan.) 1930.
5. Williams, Anna W., in discussion on Davis, D. J.: Septic Sore Throat, J. A. M. A. **93**: 982 (Sept. 28) 1929.
6. Crowe, H. W.: Differentiation and Classification of Nonhemolytic Streptococci by Use of Crowe's Medium, Ann. Pickett-Thompson Research Lab. **3**: 251, 1927.

Immunologically (opsonic method), hemolytic streptococci from septic sore throat belong to neither the scarlet fever nor the erysipelas groups. They differ from scarlet fever streptococci by causing chocolate agar to become green.

On chocolate agar, typical colonies of streptococci from scarlet fever are slightly granular and conical, and from erysipelas smooth and convex, while those from septic sore throat are very rough, indented, conical or convex, and gun metal in color, with occasional blister-like tops.

637 South Wood Street.

NORMAL BLOOD PRESSURE IN ESSENTIAL HYPERTENSION *

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BOSTON

Essential hypertension is usually defined as a disease characterized chiefly by a persistent elevation of the blood pressure without known organic cause. This elevation of blood pressure may occur in young persons.[1] The disease may exist without symptoms for many years, and frequently is not discovered until a cerebral hemorrhage or cardiac insufficiency develops. It is now widely recognized that a disease with such an insidious course can be diagnosed only by routine determinations of the blood pressure at all ages. It is not generally realized, however, that essential hypertension may exist when a normal blood pressure has been observed at one visit. The present paper, therefore, will be devoted to a discussion of the cause, frequency and practical significance of normal blood pressure readings in essential hypertension.

CRITERION OF NORMAL BLOOD PRESSURE

A clear understanding of any blood pressure study necessitates a knowledge of two fundamentals. The first of these concerns the figures that have been selected as the normal standards of blood pressure. The second is the variability of the blood pressure.

The normal standards, however, have no rigid bounds, and authorities are not yet agreed as to the upper limits of normal. Many authors accept as upper limits of normal a systolic blood pressure of 150 in persons more than 45 years of age. Often they do not quote their diastolic standards. For the purposes of this paper, a blood pressure of from 120 to 135 systolic and from 80 to 89 diastolic between the ages of 20 and 60 is considered the average normal. This is based on Hunter and Frost's[2] table of 250,000 determinations (table 1). A variation of more than 10 mm. of mercury above these figures is considered pathologic, for it has been shown that such increases in blood pressure above the quoted average levels are accompanied by increased mortality.[3]

IMPORTANCE OF LABILITY

In addition to a knowledge of normal standards, the evaluation of any blood pressure study necessitates a clear understanding of the variability of the blood pressure itself. This phenomenon is also called fluctuation, lability and instability, and is what Kylin[4] and Fahrenkamp[5] consider the outstanding characteristic of essential hypertension. This variability has not been sufficiently emphasized in the American literature, and only recently in the foreign literature. Credit should be given, however, to the American investigators O'Hare[6] and Mosenthal[7] for calling attention to this feature.

METHOD OF INVESTIGATION

It is with this background that the blood pressure of each patient in the hypertension clinic of the Boston Dispensary has been studied during the past one and one-half years. The blood pressures have been taken at each visit every five minutes over a period of at least twenty minutes. The patients are seated in a comfortable chair in a quiet room and are requested to relax. To attain a quiet mind, they are asked to banish as much of thought as possible or to think of peaceful, nonstimulating things. After this there is no conversation and they are left alone in the room between readings of the blood pressure. The determinations are made by the same physician with a mercury manometer and simultaneous checking of the auscultatory method by radial palpation. The auscultatory figures are the only ones recorded, unless there is an unusual difference between the two methods. Only patients who have been seen during a period of at least two months and who have had at least five abnormally high blood pressure readings are reported in this paper. In practically all of the cases reported the blood pressure readings have been much higher than the quoted standards, so that there should be no doubt of their hypertensive nature. Most of the patients, in addition, have been followed for at least one year by the hypertension clinic, and many for years previously in the general clinic.

TABLE 1.—*The Average Variations of Blood Pressure Based on 250,000 Determinations (After Hunter and Frost)*

Age	Systolic	Diastolic	Pulse Pressure
10	103	70	33
15	113	75	38
20	120	80	40
25	122	81	41
30	123	82	41
35	124	83	41
40	126	84	42
45	128	85	43
50	130	86	44
55	132	87	45
60	135	89	46

RESULTS

1. *Lability of Blood Pressure in Hypertension.*—From minute to minute the hypertensive patient shows widely varying blood pressures,[8] depending greatly on his physical and psychic stimuli. Daily and weekly records during the course of the year show widely fluctuating figures in untreated patients. Even patients with advanced stages of the disease have marked fluctuations. Chart 1 (*A* and *B*) exemplifies the lability in cases of hypertension of long duration, some with heart disease, others showing retinal changes or renal injury. The lability is just as great, if not greater,

* From the Medical Clinic of the Boston Dispensary, service of Dr. Joseph H. Pratt, and the Division of Research.

1. Alvarez, W. C.: Blood Pressures in Fifteen Thousand University Freshmen, Arch. Int. Med. **32**: 17 (July) 1923. Diehl, H. S., and Sutherland, K. H.: Systolic Blood Pressures in Young Men, ibid. **36**: 151 (Aug.) 1925.

2. Frost, H. M.: Hypertension and Longevity, Boston M. & S. J. **193**: 241 (Aug. 6) 1925.

3. Fisher, J. W.: Risks Rejected for High Blood Pressure Only, Years 1907-1920, Proc. Assn. Life Insurance Medical Directors of America **9**: 63, 1922. Rogers, O. H., and Hunter, A. W.: Ibid. **10**: 43, 1923.

4. Kylin, E.: Die Hypertoniekrankheiten, Berlin, 1926, pp. 73, 69, 65.

5. Fahrenkamp, K.: Beitrag zur Kenntnis der Tagesschwankungen des Blutdruckes bei der Hypertonie, Med. Klin. **17**: 776 (June 26) 1921.

6. O'Hare, J. P.: Vascular Reactions in Vascular Hypertension, Am. J. M. Sc. **159**: 369 (March) 1920.

7. Mosenthal, H. O., and Short, J. J.: The Spontaneous Variability of Blood Pressure, Am. J. M. Sc. **165**: 531 (April) 1923.

8. Hahn, L.: Ueber die kurzfristigen Spontanschwankungen des systolischen Blutdrucks, Zentralbl. f. inn. Med. **46**: 738 (Aug. 8) 1925.

in the earlier course of the disease and in the milder cases. In early and mild cases there may be blood pressure curves such as are recorded in chart 1, *C* and *D*, and in chart 2. It will be seen that on some days, after the patient has been resting in a comfortable chair and quiet room, the blood pressure will drop to normal.

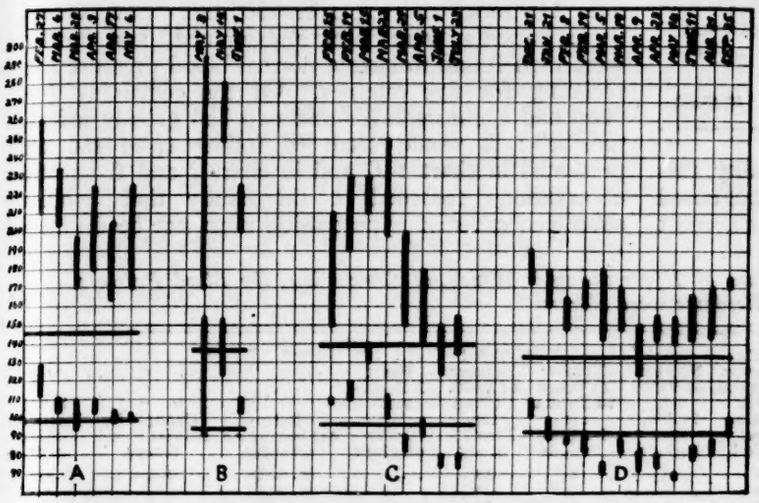

Chart 1.—Blood pressure readings in four patients: *A*, J. P., aged 61: marked degree of retinal sclerosis and cardiac enlargement. *B*, M. F., aged 38; marked retinal sclerosis; slight cardiac enlargement. *C*, F. S., aged 51: fundi normal; renal function normal; slight cardiac enlargement. *D*, H. M., aged 32: fundi normal; heart normal; renal function, normal. The horizonal bands show the upper normal limits for systolic and diastolic blood pressure. The upper vertical black bands indicate systolic blood pressure and the lower one diastolic blood pressure. The length of the bands indicates the fall in blood pressure during a twenty minute rest.

Even more important is the fact that occasionally it is seen to be normal without resting.

2. *Incidence of Normal Readings.*—Why the hypertensive patient is quieter and more at ease some days, and has a normal blood pressure on these days, is still unsettled. The changes in the emotional state of the patient undoubtedly play an important rôle. The frequency with which the blood pressure in untreated essential hypertension drops to normal during the twenty minute period of observation is remarkably high. Forty-three patients, or 56 per cent of the cases of hypertension reported in this study, showed a normal blood pressure at least once (table 2). How often this normal blood pressure reading was obtained after a twenty minute rest period, and how frequently without rest, is shown in table 3. This incidence occurred in a group of seventy-six hypertensive patients who satisfied the criteria for inclusion in this investigation. These seventy-six patients made 931 visits during a twelve-month period, approximately twelve visits per patient. The blood pressure was taken at each visit.

3. *Further Analysis of the Reported Cases.*—The forty-three patients (table 3) whose blood pressures dropped to normal at least once were on the average nine years younger than the group of thirty-three patients who had a blood pressure persistently above normal. Their average age was 52.5 years, as compared with 61.3 years for the latter group. Further analysis of table 3 shows that the forty-three patients whose blood pressures at some time dropped to normal have been observed an average of 1.9 years. In table 3 there is also listed the extent and degree of secondary cardiovascular changes in each case. It is seen that the most common changes are in the retinal blood vessels. A one plus indicates mild to moderate narrowing of the retinal arteries, especially in the smaller branches. With this there may or may not be mild to moderate tortuosity of the retinal arteries and an increase in the light reflex. A three plus indicates marked narrowing of the retinal arteries, frequently nicking of veins, and occasionally waxy disks and hemorrhages. A two plus is a stage intermediary between a one plus and a three plus. The more marked degrees of retinal sclerosis are found in the older patients. It is admitted that the mild fundus changes recorded as early hypertensive changes are difficult to separate from the normal fundus variations.[9] However, the present fundus study partially overcomes this difficulty, since the ophthalmologist, Dr. Joseph J. Skirball, examined the patients without knowing the clinical diagnosis. This was further aided by sending to the ophthalmologist a large number of healthy control patients interspersed with the hypertensive patients. It is significant that Dr. Skirball found a comparative infrequency of fundus changes in the control patients of similar age. Teleroentgenograms and orthodiagrams were made in twenty-seven cases. There were only six patients with cardiac enlargement in the group of forty-three patients. There is a striking absence of cases showing renal injury as determined by dilution and concentration tests and phenolsulphonphthalein tests. One cannot conclude from these facts that the disease in these cases is not serious. Patient 7 had a residual hemiplegia and patient 18 had a right facial palsy of central origin.

PRACTICAL APPLICATION

These observations have a definite practical value. Whenever a physical or psychic relaxation occurs there is found, among other things, a lowering of the blood pressure. This is especially important, as has been shown, in considering the blood pressure in hypertensive disease. Failure to appreciate this fact fully must cause some insurance companies to accept many early hypertensive patients. Ordinarily the insurance physician is content with one normal specimen of urine and one normal blood pressure reading. Referring to chart 2, it is seen that such criteria of acceptance for insurance would have been satisfied in the hypertensive patient for whom the readings are recorded on June 7, 1927, while on August 16, 1927, the blood pressure had again risen to a hypertensive level.

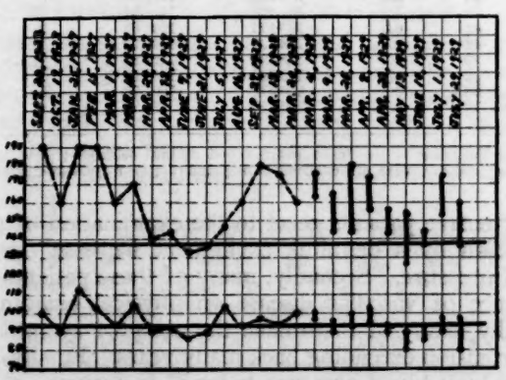

Chart 2.—Blood pressure readings in L. C., aged 43 in 1929: considerable retinal sclerosis; renal function normal; no cardiac enlargement.

9. Friedenwald, Harry; and Friedenwald, J. S.: The Retinal Blood Vessels in Hypertension and Arteriosclerosis, Bull. Johns Hopkins Hosp. 45: 232 (Oct.) 1929.

If the forty-three patients whose blood pressures dropped to normal had been examined on those days by physicians unaware of the previous blood pressure records, one would think that the diagnosis of hypertension might readily have been missed. In reality, this group of cases probably would be correctly diagnosed because of four additional facts. First of all, most hypertensive patients react to the examination of a new physician by a definite "excitement increase" in their blood pressure. Secondly, many of these patients show evidence of vascular disease on physical examination. Thirdly, many of them have the accepted symptoms of hypertension extending back many years. Finally, "how is my high blood pressure today?" is a question and a clue which most of these patients present to physicians who examine them, thus indicating knowledge of the past elevation of their blood pressure.

TABLE 2.—*Incidence of Normal Blood Pressure Readings in Seventy-Six Cases of Essential Hypertension*

	Male	Female	Total
Number of cases	18	58	76
Number and percentage with one or more normal blood pressure determinations	8 (44%)	45 (60%)	43 (50%)

The significance of table 2 is indicated in the fact that if 56 per cent of early and moderately advanced cases exhibited these conditions, then it is probable that such symptoms may be very common in the earliest stages. At the onset of the disease blood pressure levels are probably lower, the degree of lability is just as great, and frequent drops to normal would be expected. Such cases are necessarily difficult to distinguish from transient or emotional hypertension. It is interesting in this regard to cite the recent report of Schultz,[10] who found twenty-four cases of hypertension with blood pressures above 140 mm. in freshmen women. Eight of these women had blood pressures over 145 mm., and six over 150 mm. Seventeen of these patients were later reexamined, and thirteen were then found to have a normal blood pressure after reclining for five minutes. Of the remaining four, "two had acute nephritis and two had grossly infected tonsils." It would seem to follow from the data presented in chart 1 *D* and in chart 2 and from other observations recorded in this study that Schultz's seventeen cases of hypertension must not be dismissed as instances of emotional hypertension until they have been carefully followed for many months.

TABLE 3.—*Analysis of the Forty-Three Cases of Hypertension in Which, at Some Time, the Blood Pressure Readings were Normal* *

Case	Age	Observed Duration of Hypertension, Years	Systolic Range During Total Observation	Diastolic Range During Total Observation	Number of Drops to Normal After 20 Min. Rest Period	Total Number of Visits with 20 Min. Rest Periods	Number of Drops to Normal with No Rest Periods	Total Number of Visits Utilized for Present Study	Heart Enlargement by Orthodiagram	Electrocardiographic Changes	Changes in Retinal Blood Vessels	Renal Function Impairment
1	75	4.0	250-110	100- 60	6	6	0	10	++	L. A. D.	+++	—
2	72	1.5	194-130	105- 60	3	8	0	14	..	L. A. D.	++	—
3	70	3.5	230-138	120- 80	4	5	0	10	++	.....	+++	—
4	70	5.0	210-142	100- 60	1	4	0	12	+	.....	++	—
5	68	0.5	190-130	114- 74	2	2	0	11	—	.....	+	—
6	68	1.0	220-124	104- 70	7	11	0	13	..	.....	—	—
7	68	0.8	220-130	100- 76	2	4	0	5	+	.....	+++	—
8	65	1.5	180-170	116-110	1	1	0	3	—	L. A. D.	..	—
9	65	0.7	170-128	100- 88	7	7	1	8	—	.....	++	—
10	64	1.0	188-110	104- 62	7	8	3	11	..	—	+	—
11	64	3.2	238-126	102- 60	8	10	0	14	—	.....	++	..
12	62	4.1	200-116	110- 62	3	5	2	12	..	.....	++	..
13	62	3.1	200-120	110- 70	1	2	0	11	—	.....	+	—
14	60	3.6	230-124	140- 80	1	12	0	27	+	.....	+++	—
15	58	1.0	190-128	100- 76	2	2	0	7	—	.....	..	—
16	58	2.8	200-136	102- 68	3	6	0	11	..	—	—	—
17	56	1.5	210-130	100- 64	2	5	0	5	—	.....	+++	—
18	55	1.5	224-138	130- 90	1	6	0	12	—	.....	+	—
19	53	0.7	210-123	110- 68	5	5	0	8	—	.....	+	..
20	52	2.7	190-108	124- 70	7	11	6	14	..	.....	++	—
21	52	0.7	210-134	128- 72	1	5	0	10	..	.....	++	—
22	52	0.5	200-136	140- 80	2	5	1	8	—	.....	+	—
23	51	1.3	190-120	110- 68	4	5	1	10	—	.....	+	—
24	51	1.2	204-124	124- 80	3	5	2	13	—	.....	—	—
25	51	6.0	200-115	104- 70	1	1	2	7	..	.....	—	—
26	50	3.1	200-142	130- 82	1	4	0	13	—	—	+	—
27	50	0.3	190-124	110- 80	2	2	0	4	..	.....	—	—
28	50	0.8	250-124	140- 74	1	4	0	7	+	.....	—	—
29	49	0.8	174-134	88- 74	4	4	0	5	..	.....	++	—
30	48	5.1	210-140	120- 90	1	4	0	14	..	.....	+	—
31	47	0.9	174-122	104- 80	8	8	5	19	..	.....	—	—
32	47	1.5	184-130	120- 92	2	7	0	11	—	.....	+	—
33	45	1.0	192-128	120- 78	3	6	0	7	..	.....	+	—
34	45	0.8	210-134	130- 90	2	11	0	13	—	.....	+	—
35	44	0.8	180-136	110- 80	2	3	1	7	..	.....	—	—
36	43	6.1	190-128	112- 76	5	7	2	33	—	.....	++	—
37	43	1.5	190-128	140- 80	2	4	0	9	..	.....	+	—
38	42	0.3	190-132	120- 80	2	4	0	5	—	.....	—	—
39	42	0.3	178-130	110- 90	1	3	0	5	—	.....	+	—
40	39	0.5	158-134	110- 94	1	9	0	12	—	.....	—	—
41	32	3.0	190-126	110- 68	2	12	0	14	—	.....	—	—
42	32	0.5	160-112	100- 78	3	6	1	8	..	.....	—	—
43	18	0.5	158-116	98- 72	4	7	1	7	—	.....	—	—

* In the table +++ indicates marked retinal sclerosis; ++, moderate retinal sclerosis, or cardiac enlargement (by 7 foot roentgenogram); +, slight retinal sclerosis, or cardiac enlargement (by 7 foot roentgenogram); L. A. D., left axis deviation.

The separation of emotional hypertension from essential hypertension is often very difficult and sometimes impossible. That emotion will raise the blood pressure in essential hypertension to a still higher level is well known. That emotion often causes a transitory rise of the normal blood pressure is also generally appreciated. There is evidence to show that prolonged emotional upsets may produce a hypertension lasting several months.[11] In such cases, the solution of the patient's emotional troubles is followed by a drop to a persistently normal level of blood pressure.

10. Schultz, quoted by Althausen, T. L.; Kerr, W. J., and Burnett, T. C.: Am. J. M. Sc. **177**: 398 (March) 1929.
11. A series of these cases will be reported later.

As an example of the frequent difficulty of separating emotional hypertension from essential hypertension, I am privileged to report a case from the private records of Dr. Joseph H. Pratt. This patient has been under his observation for twenty-seven years. At the first examination, in 1903, at the age of 26, a blood pressure of 155 was found. Table 4 presents the subsequent course of this unusual case. It may be observed that repeated and careful study of the heart, radial arteries and renal function of this patient has not revealed any deviation from the normal. This is strong evidence against a diagnosis of true essential hypertension of long duration. Furthermore, the relief of symptoms coincident to the fall in blood pressure (table 4) favors a diagnosis of emotional hypertension. One may venture the opinion that, between the periods of observation, the blood pressure of this patient may have been normal, for it is only natural that patients with emotional disturbances should visit their physicians when they are most upset, and it is on such occasions that their blood pressure is most apt to be elevated. The difficulties in distinguishing between essential and emotional hypertension thus become more evident.

These facts concern the general practitioner as much as the medical examiner for insurance. In the periodic health examination, the physician is called on by the patient to detect the early signs of disease. This involves, among other things, the earliest possible recognition of the onset of hypertension. Although the symptoms generally associated with essential hypertension often precede by many years [12] the onset of the more marked elevation of blood pressure, there is a large group of symptomless cases in which the only means of detection is the sphygmomanometer. The physician, therefore, should not be satisfied with a normal blood pressure reading at one visit.

Another situation in which the presence of early hypertension may be masked occurs in the bed patient, in the home or hospital. Even a twenty minute quiet rest in a chair will often cause a drop in blood pressure of from 30 to 100 mm. of mercury (chart 1 *B*). A rest of from one to two hours in bed will at times cause a much greater fall than a rest of twenty minutes. Since the hospital patient is usually not examined for at least an hour after admission, and the bed patient at home for at least one or two hours after calling the physician, one can readily realize how a mild hypertension may drop to normal and be missed. As a rule, the longer the hypertensive patient remains in bed, within limits, the lower the blood pressure, so that subsequent determinations in bed may yield false normal figures similar to those obtained in this study.[5] When the patient has improved and is permitted out of bed, the blood pressure will tend to rise again; but, unfortunately, the blood pressure is not generally followed during convalescence.

Normal blood pressure determinations taken in the morning after a night's rest will usually be found lower than in the evening,[13] and this diurnal variation also holds true for the hypertensive patient.[14] In early and mild types of hypertension in this clinic, normal readings have been secured in the morning hours and distinctly pathologic readings in the evening.

Finally, there must be mentioned a small group of unscrupulous patients who have learned the value of sedatives in lowering the blood pressure. Knowing that they have mild hypertension, they will use these drugs in large doses preceding their physical examination for employment or insurance. Their detection is very difficult.

There is no need to discuss the group of patients who, having had hypertension for many years, develop generalized arteriolosclerosis or cardiosclerosis, with subsequent lowering of the blood pressure toward normal. This is possibly explained in many cases as the result of cardiac weakness. In some instances it is caused by intercurrent disease, such as malignant growth, acute infectious disease, and chronic pulmonary infections.[9] The recognition of the past hypertension in these cases depends on the physical examination, which, unlike that in the early stages of the disease, will almost always show retinal sclerosis, frequently cardiac enlargement with or without cardiac failure, and

TABLE 4.—*Emotional Hypertension Simulating Essential Hypertension* *

Date	Age	Blood Pressure	Pulse	Weight	Symptoms	Physical Observations
Feb. 6, 1903	26	155	..	254	Headache; backache; nausea, gas	Obesity
June 25, 1918	42	208/120				
July 16, 1918	..	200/118, 190/118, 178/120, 176/116	..	...	Fatigue; insomnia; nervous backache; pain in knees; headache	Negative; radials soft; teleroentgenogram normal; phenolsulphonphthalein excretion 60 per cent
Feb. 11, 1919	43	160/100, 182/120, 128/100, 130/100	88	...	Feels well	Radials soft; no cardiac enlargement; aortic second sound slightly accentuated
March 12, 1920	..	160/118	..	...	Slight shortness of breath on exertion	
July 1, 1919	..	140/84, 132/84	78	...	Feels very well	Negative
Jan. 8, 1925	49	154/96, 150/98, 144/96, 142/98, 140/98, 136/100				
Oct. 29, 1925	..	170/106, 168/106	84	...	Pain in feet; depressed; feels tense	Radials soft; aortic second sound slightly accentuated
Sept. 9, 1927	51	142/100	88	...	Various pains	Radials soft
Feb. 8, 1929	53	132/92	76	279	Feels fine	Radials soft; heart well within normal; specific gravity of urine, 1.025; no albumin or sugar
Sept. 4, 1929	..	124/90, 106/70	..	241	No symptoms	Orthodiagram normal

* This table is a record of the blood pressure over a period of nearly twenty-seven years in a person with emotional hypertension. Although at the age of 26 the blood pressure was elevated and at 42 a reading above 200 mm. was recorded, at the age of 53 it is normal.

12. Ayman, David; and Pratt, J. H.: The Nature of the Symptoms in Essential Hypertension, to be published.

13. Diehl, H. S.: The Variability of Blood Pressure: Morning and Evening Studies, Arch. Int. Med. 32: 835 (June) 1929.

14. Kylin (footnote 4). Fahrenkamp (footnote 5).

occasionally impairment of renal function. Such observations give the clue to a past hypertension.

There can be no great disagreement about the frequent diagnostic errors arising in the various situations discussed here. The physician is never satisfied with one negative report on sputum or one normal temperature reading when he suspects tuberculosis. He should, therefore, not be content with one normal blood pressure reading when he suspects hypertension.

THE DIAGNOSIS OF EARLY HYPERTENSION

Must one, therefore, make repeated blood pressure determinations in every person in order not to overlook early arterial hypertension? Certainly, this would be an ideal procedure. However, there are certain facts and anamnestic details that should make one especially suspect the presence of early hypertension. It must be remembered that about 15 per cent of deaths occurring after 50 years of age are due to primary hypertension.[15] From the ages of 30 to 60, the incidence of hypertension in outpatient hospital practice rises from 10 per cent to 40 per cent.[16] Therefore, from the age of 30 and onward one should especially search for early hypertension. This applies, of course, to symptomless cases.

The family history of the patient will be of further assistance in directing attention to the possibility of essential hypertension. The individual with a family history of hypertension, cerebral hemorrhage, chronic renal disease or chronic heart disease must be considered a likely candidate for hypertension. Although there are numerous hypertensive patients without such detectable histories, Weitz,[17] O'Hare [18] and others have shown that in a large proportion a positive cardiovascular family history is found. If a positive family history is found in a patient with "transient" or "emotional hypertension," then such a patient should be carefully observed for a period of years.

If the patient complains of that group of symptoms which, when considered in their entirety, Kylin [4] and Kauffmann [19] believe to be typical of essential hypertension even in its earliest stages, then one should repeatedly examine the blood pressure. These writers find that the symptoms most frequently complained of are dizziness, headaches, palpitation, a sensation of weight on the chest, rheumatoid pains, irritability, mild fatigue and sexual impotence. In fact, patients may complain of sensations indicating disturbances in the function of many organs. In another paper from this clinic [12] it was shown that the symptoms in uncomplicated hypertonia are of psychoneurotic nature and, in a large number of cases, extend back into early youth. Furthermore, I have been able to corroborate in an unpublished study the work of O'Hare [18] showing that a large number of hypertensive patients give a history of vasomotor instability in youth. Therefore, in all young people with signs or symptoms of vasomotor instability, especially with a family history of hypertensive disease, one should repeatedly search for the development of hypertension, using the proper standards of normal blood pressure given at the beginning of the paper.

15. Bell, E. T., and Clawson, B. J.: Primary Hypertension, Arch. Path. **5**: 939 (June) 1928.
16. Gager, L. T.: The Incidence and Management of Hypertension, J. A. M. A. **90**: 82 (Jan. 14) 1928.
17. Weitz, W.: Zur Aetiologie der genuinen und vasculären Hypertension, Ztschr. f. klin. Med. **96**: 151, 1923.
18. O'Hare, J. P.; Walker, W. G., and Vickers, M. C.: Heredity and Hypertension, J. A. M. A. **83**: 27 (July 5) 1924.
19. Kauffmann, F.: Ueber die Häufigkeit einzelner wichtigerer Klagen und anamnestischer Angaben bei Kranken mit arterieller Hypertension, München med. Wchnschr. **36**: 1230 (Sept. 5) 1924.

CONCLUSIONS

1. The instability of the blood pressure in essential hypertension will often lead to normal readings of the blood pressure if the patient sits quiet for from five to twenty minutes. This occurs even in patients with widespread vascular changes.
2. Fifty-six per cent of seventy-six unselected, untreated cases exhibited this finding.
3. The paradoxic statement that the disease hypertension may exist with normal blood pressure appears to be justified.
4. There is a wide range of circumstances tending to lower an elevated blood pressure.
5. Certain anamnestic facts should especially lead to repeated blood pressure determinations.

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DEATH FROM BRONCHIAL ASTHMA

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Death due to a paroxysm of bronchial asthma is very rare. Huber and Koessler,[1] in 1922, could find only twenty-one cases of death due to asthma reported in the literature. Rackemann later reviewed the twenty-one cases reported by Huber and Koessler and added one other case. He concluded that in no more than eleven cases of those reported had death resulted from the immediate effects of asthma. Kountz and Alexander,[2] in 1928, found in the literature about thirty cases in which autopsies with microscopic studies had been made. Several of the cases, they decided, were not true bronchial asthma, and in other cases death took place from intercurrent disease. They also reported three additional cases with detailed postmortem analyses. Death in each of these three cases was directly attributed to the effects of asthma.

The case reported here was carefully observed clinically from onset to termination, with postmortem examination and microscopic study.

REPORT OF CASE

A woman, aged 67, had no early history of bronchial trouble which had any bearing on asthma or any history of allergy. She had no children. At about the age of 48 she was married, the second time, to a man who had had asthma and who had attacks of unconsciousness in his paroxysms. He died in 1918, when she was 51. In 1914 the patient had a severe attack of sinus trouble and an upper respiratory infection, from which she recovered and was well until 1922, when she had a second severe attack of bronchitis while in Egypt. Following this she began having asthmatic attacks. In 1923, 1924 and 1926 she was under the care of Dr. John G. Cross for asthma. At various times during this period Dr. Floyd Grave found Curschmann's spirals, Charcot-Leyden crystals, numerous eosinophils, short-chain streptococci and also a small bacillus, which looked like the influenza bacillus, in the sputum. At times she would cough up plugs of tenacious mucus, which apparently came from the smaller bronchi and contained many pus cells, eosinophils and streptococci. She showed always a marked eosinophilia, usually from 11 to 13 per cent. Skin tests at that time were not conclusive for any specific food sensitization. Aside from asthma, the general physical examination was negative.

The following is a summary of Dr. Cross's experience with the patient from 1923 to 1928, as outlined by Dr. A. E. Cardle.

1. Huber, H. L., and Koessler, K. K.: Pathology of Asthma: Report of Three Cases, Arch. Int. Med. **30**: 689-760 (Dec.) 1922.
2. Kountz, W. B., and Alexander, H. L.: Death from Bronchial Asthma, Arch. Path. **5**: 1003 (June) 1928.

1. The patient was given three separate courses of autogenous vaccine made from her sputum. These vaccines contained long-chained streptococci, micrococci and diplococci. It was not felt, however, that she showed any marked improvement with this treatment.

2. Numerous skin tests were made, the only suggestive ones being those with potato, milk and cheese. Omission of these foods from the diet did not, apparently, give any relief from the symptoms.

3. Continued treatment with iodides failed to give any marked relief.

4. Ultraviolet rays were used continuously for a period of two months, but aside from a tonic effect there was no change in the asthmatic attacks.

5. Hypodermics of epinephrine gave relief from the attack.

6. Ephedrine, administered in capsules, gave slight, temporary relief.

7. Stock vaccines made from staphylococci gave no relief.

The patient had also had the so-called orange cure in California, but aside from a marked loss in weight there was no change in her condition. The urine had always been normal. Numerous roentgen examinations of the chest showed no definite pathologic condition. The left antrum was punctured and drainage instituted without relief.

Beginning in March, 1928, the patient was under the care of Dr. Duke of Kansas City for several weeks. Dr. Duke [3] kindly sent me a report of his examination, and the following summary of his history of the patient's condition:

Examination showed a normal blood pressure (120 systolic and 80 diastolic); the urine was normal, and a roentgenogram of the chest was negative. Heart sounds were normal and clear. Examination of the chest showed slight harshness of the breathing sounds, occasional asthmatic râles, and slight prolongation of expiration. A blood count showed: hemoglobin, 90 per cent; polymorphonuclears, 47 per cent; small lymphocytes, 34 per cent; large lymphocytes, 7 per cent, and eosinophils, 11 per cent. The patient stated that the symptoms of asthma were worse in winter and at night, and seemed to be increased by dust. The temperature was always subnormal, varying 2 degrees (96 in the morning and seldom reaching 98 in the afternoon). When an attempt was made to cause a rise in temperature by means of *Bacillus coli*, she had a severe reaction with extreme cyanosis and unconsciousness.

Dr. Duke saw the patient again that fall and he reported that he could see no evidences of improvement.

The patient spent the winter of 1928 and 1929 in California. Her asthma was no better. She had had another severe paroxysm with unconsciousness and extreme cyanosis, from which she quickly revived with the use of epinephrine. Relief from these attacks was always accompanied by a profuse discharge of tenacious mucus and mucous plugs from the bronchi.

She returned to Minneapolis in May, 1929. Since coming home she had been going out driving and seeing her friends. I saw her for the first time about 6 p. m., May 31, 1929. She then complained of headache and of feeling "grippy," with some backache, a wheezy cough and a sensation of smothering. She had been out motoring during the afternoon. She had been having about three or four attacks every twenty-four hours, worse at night, but the attacks were not severe enough to require epinephrine and were not of long duration. She was somewhat indefinite about her past history, relying on the statements of her attendant. Her memory for recent events was poor. She was sitting up quietly, fully dressed, at this interview.

On examination the patient appeared slightly cyanotic; breathing seemed rather shallow, at about a normal rate; the pulse was 90 and the temperature 100.8 F. There were coarse, wheezy râles throughout the chest. There was no particular evidence of an upper respiratory infection. My impression at the time was that she was developing a mild upper respiratory infection, a condition which was at that time prevalent in Minneapolis. I advised quiet, rest in bed and a liquid diet, and prescribed 5 grains (0.3 Gm.) of acetylsalicylic acid and one-fourth grain (16 mg.) of codeine.

Fig. 1.—Specimen of lung tissue removed at autopsy in a fatal case of asthma, showing markedly thickened bronchi (*A*).

At 9 p. m. the same evening the patient's attendant called me in great excitement. On my arrival, in about fifteen minutes, I found the patient unconscious, intensely cyanosed, gasping for breath, and apparently getting nothing in or out of her lungs. The attendant had given her 1 cc. of epinephrine in divided doses, 0.5 cc. followed by 0.5 cc. in twenty minutes, without any relief. The pulse, which was 120, rapidly fell and suddenly stopped while I was examining her. Artificial respiration was without effect.

Autopsy was performed the following morning by Dr. E. T. Bell, who reported as follows:

The body, which was embalmed, was well developed and well nourished, weighing about 150 pounds (68 Kg.). Hypostatic areas were faint purple and situated posteriorly; there was no edema, cyanosis or jaundice.

The peritoneal cavity contained no excess fluid, and there were no adhesions. The intestinal surfaces were smooth and clear. The diaphragm was at the fourth interspace on the right, and the fifth interspace on the left. The appendix was small and fibrous.

The pleural cavities and the pericardial sac did not show any excess fluid or adhesions.

The heart was 14 cm. in width. It weighed 240 Gm. The surfaces of the serous pericardium were smooth and clear. There was no enlargement of any of the chambers of the heart, and no disease of any of the valves, of the mural endocardium or of the coronary arteries. Areas of softening or of fibrosis were not present in the myocardium. There was no hypertrophy of the right ventricle. The root of the aorta showed a few small yellowish lesions.

The lungs were light and feathery. They crepitated throughout and no palpable nodules were noted. Emphysema and atelectasis were not present. There was no disease of the pulmonary arteries or veins. The bronchi were apparently normal until the second bifurcations were reached, and from that size onward all the bronchi were almost completely occluded, apparently by thickening of the walls. The lumens

3. Duke, W. D.: Personal communication to the author.

were everywhere very small. The bronchi were prominent on the surfaces exposed by cutting through the lung.

Microscopic examination of the thickened bronchi showed marked thickening of the mucosa and submucosa due to the presence of large numbers of leukocytes and eosinophils (this is the characteristic lesion of bronchial asthma). The bronchial thickening was so pronounced that the amount of air reaching the alveoli must have been greatly reduced. The lesion was amply sufficient to account for the cyanosis which the patient had experienced. The bronchial lymph nodes showed no disease except moderate anthracosis. There was no disease of the trachea or larynx.

The spleen weighed 100 Gm. The capsule was smooth. The cut surfaces did not show any special changes.

The liver weighed 1,400 Gm. The external surface was smooth. The cut surfaces did not show special changes. The gallbladder was thin and did not contain any calculi. The bile ducts were patent.

No lesions were present in the mucosa of the stomach, duodenum, jejuno-ileum or colon.

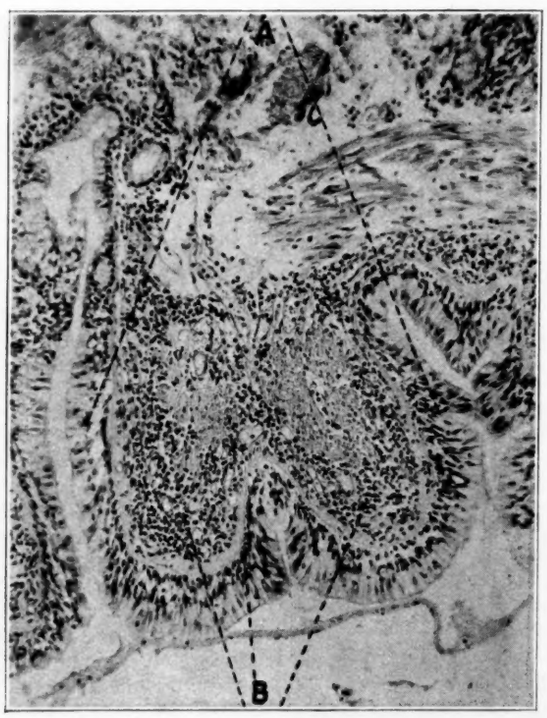

Fig. 2.—Microscopic appearance of section of lung tissue: *A*, infolding and thickening of mucous membrane; *B*, eosinophil infiltration.

The pancreas showed distinct lobules, without areas of fibrosis or softening. There was no gross disease of the suprarenals.

The kidneys together weighed 220 Gm. The capsules stripped easily; the external surfaces were smooth, and no changes were seen on the cut surfaces. There was no dilatation of the pelves or ureters. Changes were not apparent in the mucosa of the bladder.

The uterus was small and contained a number of hard, partially calcified myomas.

The aorta showed a rather extensive atheroma in the abdominal portion.

No lymph nodes were seen in the thorax or abdomen. The thyroid was not enlarged.

There were no injuries in the soft tissues of the scalp, fractures of any of the cranial bones or thrombosis in the dural sinuses. Excess fluid was not present in the subarachnoid space, and there were no hemorrhages on the surface of the brain. The arteries of the brain showed only small yellowish areas; there was no narrowing or thrombosis. Coronal sections of the brain did not reveal any gross lesions.

The diagnosis was asphyxia, resulting from chronic obliterative bronchitis (asthma).

COMMENT

In a personal communication, Dr. Duke,[3] who had given considerable time and study to this patient, stated that he considered the allergy due to an abnormal response of the lung tissues in an attempt of the organism to adjust itself to changes in temperature. This opinion, if I quote correctly, was based on the facts that the asthma was worse in winter than in summer and worse at night; that the patient had a continuously subnormal temperature, and that an artificially produced rise in temperature precipitated a very severe reaction.

The fact that the patient had an increase in temperature before the onset of the fatal reaction permits this hypothesis with regard to her fatal attack. Whether the rise in temperature was allergic, as Dr. Duke suggests, or whether it was due to the onset of a prevalent upper respiratory infection, as it appeared to me at the time, would be unimportant, and it must be admitted that there was little evidence of infection, clinically or pathologically, in the trachea or larger bronchi. Whatever its cause, the reaction was overwhelming. I thought that possibly the failure of the epinephrine to give relief as in previous attacks might have been due to deterioration of the drug, as the bottle had been opened some time previously. However, checked by Arthur D. Hirschfelder with a fresh sample, it proved quite as efficient in raising the blood pressure of an animal. One might also think that larger doses might have relaxed this spasm. Here, again, Duke informs me that he has known as much as 3 ounces (90 cc.) to be given in twenty-four hours without effect, suggesting to him that these patients may become so sensitized that they are completely refractive to therapy.

In the pathologic specimen, the lungs showed no dilatation of the smaller bronchi or alveoli; consequently there was no emphysema, the condition in this regard differing from that in most of the previously reported cases. The medium sized bronchi, agreeing with previous reports, however, did show marked narrowing and much infolding of the mucous membrane. The muscle layer seemed hypertrophied. On gross examination the bronchi stood out like highly sclerotic vessels. This narrowing of the bronchi was shown by Huber and Koessler by actual measurement. The mucous glands seemed unusually large and numerous. Koessler found this in some of his cases. The striking feature of the microscopic section, however, was the enormous number of eosinophils in the lumen of the bronchi, the mucous membrane, the muscle and the subcutaneous tissues, reminding one of the lung changes reported in guinea-pigs dying of anaphylactic shock, except that in animals dying of anaphylactic shock the finding of emphysema and atelectasis is the rule. The emphysema is caused by the fact that the inspiratory muscles are much more powerful than the expiratory, and in the presence of spasm the air could be drawn into the lungs much faster than the weaker expiratory muscles could force it out. In this case, however, the stenosis may have been so complete, as a result of the extreme spasm and a profuse outpouring of mucus, that air could not reach the alveoli. This assumption is strengthened by the history of the two previous attacks of unconsciousness, in both of which recovery seemed to be accompanied by a profuse discharge of mucus from the bronchi.

SUMMARY

1. In the case presented here, death occurred solely from a paroxysm of asthma, following the injection of a previously effective dose of epinephrine.

2. The cause of death in this case was asphyxia, the asphyxia being due to a long standing chronic bronchitis with thickening of the bronchial walls and narrowing of the lumen of the bronchi, a superimposed allergic reaction characterized by contraction of the muscle layer with marked infolding of the mucous membrane, an outpouring of mucus, and a flooding of the tissues of the bronchi with eosinophils.

3. There was no hypertrophy of the right heart, no arteriosclerosis of the pulmonary vessels, and no emphysema.

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A CAUSE OF ADHESIONS IN THE RIGHT UPPER QUADRANT*

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For several years it has been my custom to make a thorough survey of the abdominal contents in nearly all cases in which the abdomen is opened. This examination differs materially from casual notation of the condition of the gallbladder and the appendix, such as is common practice with gynecologists. Palpation is conducted with painstaking gentleness, as well as thoroughness; I aim always to be so gentle that patients under light anesthesia are not aroused or stimulated to strain because of the forcefulness or harshness of manipulation.

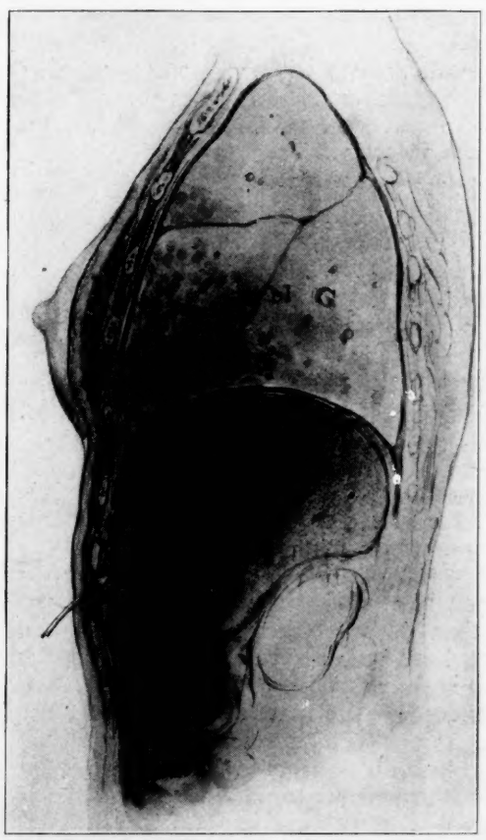
Thorough routine examination, as indicated, has led to the discovery that there is a frequent incidence of "violin-string" adhesions between the anterior surface of the liver and the anterior abdominal wall. I wish particularly to emphasize the location and the character of these adhesions in distinction from isolated adhesion bands and commonly encountered liver-kidney or gastrohepatic adhesions or adhesions on the under surface of the liver such as are encountered incident to pathologic changes of the gallbladder.

Anterior liver surface to anterior abdominal wall adhesions usually occupy an area several inches in diameter, are ordinarily numerous, and are usually of sufficient length to allow considerable play between the liver and the parietal peritoneum.

I have been impressed with the frequency with which we encounter evidence of gonorrheal disease of the tubes in patients with adhesions of this character; salpingitis is so frequently coexistent that we anticipate tubal disease as soon as the palpating hand reveals characteristic bands on exploration of the anterior surface of the liver.

It is self-evident that pelvic infections of other etiology, or in fact any peritoneal infection, may produce exactly similar adhesions; for some unknown reason, however, adhesion bands as described appear to be characteristically indicative of gonococcal infection. These adhesions probably occur in a considerable percentage of cases; my observations extend over a period of not more than three years and deductions regarding their frequency must be made with reservation.

A year ago, at the inaugural meeting of the Baltimore Obstetrical and Gynecological Society, I first called attention to this subject. Richard R. Smith and others informed me at that time that their patients with gonorrheal salpingitis often complain of severe "pleurisy" pains or have atypical "gallbladder" attacks or suffer from peculiar "colitis" pains in the region of the hepatic flexure. A patient operated on by me for eradication of the pelvic residue of severe gonorrheal disease, in whom exploration revealed typical violin-string adhesions, well illustrates the right upper quadrant symptoms experienced in such cases. She had previously suffered so intensely that a prominent internist had suspected diaphragmatic pleurisy but could not confirm his diagnosis by auscultation; an eminent Chicago surgeon, when called in consultation, diagnosed gallbladder disease and decided not to operate only because he could not obtain confirmatory x-ray evidence. Characteristic liver adhesions were the sole cause of the pain.



Violin-string or banded adhesions between the liver and the abdominal wall are frequently encountered in women with pelvic gonorrheal disease.

Within two years I have operated on more than a dozen patients in whom were encountered typical liver-abdominal wall adhesions and coincident residual gonococcal tubal changes. Four weeks ago I opened the abdomen of a patient with marked painful retrodisplacement in whom preoperative digital examination indicated no other pelvic changes; liver adhesions and typical healed bilateral soft hydrosalpinx were encountered. Three days later, in another case, I found extensive adhesions of a similar character in a patient with fibroids and thickened healed tubes in whom there was also external evidence of a previous infection of Skene's ducts and the Bartholin glands. Within two weeks I

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have had two additional operative cases. Recently a physician made inquiry relative to a patient who was operated on three years ago (prior to my realization of the significance of these adhesions). Our office record of this patient at operation is illuminating: "Typical healed gonorrheal disease of the tubes. Gonococcal type of pelvic adhesions. Exploration of the abdomen reveals no other pathologic condition except *extensive adhesions between the liver and the anterior abdominal wall.*"

CONCLUSIONS

1. Extensive adhesions between the anterior surface of the liver and the anterior abdominal wall, characteristically of the separate "violin-string" type, are not infrequently encountered in patients operated on for relief of pelvic distress incident to gonorrheal disease of the tubes.

2. It would appear that gonorrheal disease is not so invariably limited to the pelvis as has heretofore been assumed.

3. Female patients with symptoms suggestive of gallbladder disease or pleurisy may be suffering from liver-abdominal wall adhesions complicating a pelvic gonorrheal infection.

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SCLEROTIZING INJECTIONS IN VARICES OF THE LOWER EXTREMITIES

RADIOGRAPHIC AND CLINICAL OBSERVATIONS *

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The wealth of material at my disposal and the opportunity afforded me to observe innumerable cases under the sclerotizing treatment for varicose veins have prompted this additional report. Since my first publication, I have treated approximately 3,000 cases with more than 10,000 injections. The additional data obtained have been so valuable not only in the technic but also in the prognosis of this form of treatment that I have deemed the material of sufficient interest to report.

The types of veins originally described [1] were the saccular, tortuous, uniformly dilated and fine cutaneous stellate or horsehair variety. I have since become acquainted with another type of vein, the so-called penetrating variety. This vein derives its name from the clinical fact that with the examining finger it can be practically inverted, the finger actually entering into the communicating vein. This is indicative of a valvular deficiency in the communicating vein between the superficial and the deep systems, with a resultant dilatation of both. It is because of this valvular deficiency that the negative phase of the Trendelenburg test is obtained. The penetrating vein is confronted not only with a negative Trendelenburg phase but with a positive phase as well. These two sources of increased venous pressure have readily diluted the sclerotizing solution, making effective treatment most difficult. Variations in technic have recently solved this problem, making the prognosis of this type as good as that of the simpler types.

SOLUTIONS EMPLOYED

Since my first report, I have employed not only the chloride and salicylates of sodium but also quinine hydrochloride and urethane, and dextrose. It is still my opinion that the chloride is the safest and most certain in effect. My experience with dextrose has not been gratifying and this solution has accordingly been forsaken for several reasons. First, the amount employed must be large to obtain any result whatever, thereby limiting its usefulness only to the larger types of varices. Again, its viscosity necessitates the use of a large bore needle, which not only is more painful to the patient but induces the possibility of a slough due to reflux seepage of blood. Quinine and salicylate have their disadvantages in the complications that may ensue following their use, which include not only dermatitis but also auditory and vascular effects. However, when used cautiously, any idiosyncrasy of the patient being predetermined, these two solutions produce as excellent results as do the chlorides.

Fig. 1 (case 1).—Varicose veins with double Trendelenburg phases; centripetal flow through superficial system only.

It is my opinion, however, that each solution has its indication in certain definite types of varicosities. The large saccular, tortuous and uniformly dilated veins are generally treated with sodium chloride. Amounts up to 20 cc. are employed, practically insuring definite chemical action on the intima of the vein wall, without being sufficiently diluted by the blood volume. If preferred, sodium salicylate up to 5 cc. may be used; one should be certain, however, that the patient has no idiosyncrasy to the drug. As much as 60 cc. of chloride has been injected at one sitting, from five to ten veins being treated without causing any distress to the patient. Yet 10 cc. of salicylate produced general malaise, headache and dermatitis in a patient who had had no ill effects from 5 cc. of the chemical one week before. In the very large tortuous, saccular and penetrating veins, however, I have obtained a most rapid obliteration with the use of equal mixtures of chloride and

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* The data presented in this article were obtained through work done at the vein clinics of the Brooklyn Jewish Hospital and the Joint Disease Hospital. The author is indebted to Dr. Henry Greenfield for his assistance in the preparation of the roentgenograms.

1. Tunick, I. S.; Dubin, Samuel; and Schmier, A. A.: The Injection Treatment of Varices and Ulcers of the Lower Extremities, Am. J. Surg. 6: 479-486 (April) 1929.

salicylate. To be sure, the cramp is more severe, but the results are gratifying. The use of quinine is definitely contraindicated here, since the amount necessary to act on the intima, in view of its dilution by the blood volume, would undoubtedly produce untoward symptoms in any patient. I have injected 1 cc. of quinine (0.26 Gm.) in any number of patients without ill effects; yet from 1.5 to 2 cc. has invariably caused headache, general malaise, puffy eyelids, palpitation, dizziness and even syncope. Patients have often stated their preference for the cramp rather than the untoward symptoms. Primarily because of this, quinine is indicated in the smaller stellate, cutaneous veins, where only small amounts are necessary to obliterate them. Again, quinine is less prone to produce a slough and would therefore undoubtedly be preferred in these veins in which reflux seepage and rupture of the vein wall is more common. I have intentionally injected up to 3 drops of quinine subcutaneously without producing a slough. Yet 1 drop of chloride or salicylate has invariably necrosed the perivenous tissue.

AUTHOR'S SCARIFICATION PROCESS

Among the fine horsehair variety, I have often encountered veins with a caliber smaller than that of the smallest needle made. Even a 26 gage half inch needle, which I use exclusively, is too large to penetrate these cutaneous veins. There is the danger not only of rupturing these veins but also of perivenous flow of solution should the injection method be resorted to. Yet these veins are a source of considerable mental anguish to patients who consider the esthetic aspect as important to them as the symptomatic aspect is to others.

Accordingly, I have attempted to obliterate these venules by destroying their intimal membrane through a scarification process. A fine straight intestinal needle affixed to a proper handle is inserted into the lumen of the venule. The handle is then gently turned so that the needle point is in contact with the intima. With the proper lightness of touch, a complete annular segment of the intima can be destroyed. A pressure bandage is then applied for forty-eight hours, the removal of which reveals an obliteration of the vein as perfect as though it had been chemically treated. The result is most gratifying and the patient is well pleased. I have also used the scarification method in cutaneous veins of somewhat larger caliber when the patient presents an idiosyncrasy to quinine. The results here are equally effective.

TECHNIC

It is still my preference to treat the majority of veins with the patient standing. Ordinarily no tourniquet is used. The results of this method in the extremely large veins and the penetrating variety are not very satisfactory. Patients return for more than a year while the veins are slowly obliterating through a vulcanization process. Of late these patients have been treated with a double tourniquet applied with the patient standing. The patient is then allowed to lie down and the needle is inserted into the vein between the tourniquets. The leg is now elevated by an assistant and the proximal tourniquet is removed, allowing the vein to empty by gravity and by the aid of a massaging finger. The tourniquet is then reapplied, after which the solution is injected. A definite cramp is immediately felt and the subsequent obliteration is greatly hastened.

I believe that a slough is usually the result of imperfect technic. Either the solution has been injected perivenously or it has left the vein by reflux seepage. One should never inject unless one is positive that the needle is in the vein.

Blood should be aspirated into the syringe several times during the treatment, for assurance. A pressure bandage should be applied following the injection and left on for forty-eight hours.

PREVENTION OF SLOUGH

Occasionally, with the best of technic, the patient will move and some of the solution will get into the subcutaneous tissue. The injection, of course, is immediately ended, but the harm has been done. The patient will experience a burning sensation or a combination of burn and cramp. The former is indicative of perivenous injection, the latter of intravenous injection. Corrective measures must be taken or a slough will undoubtedly develop. I have treated a series of such cases at the time the injection was given until even two weeks following the treatment. I have injected from 1 to 6 cc. of distilled water to neutralize the caustic action of the chemical. The patients themselves have volunteered the information that the second injection produced a cooling effect and that the burning disappeared. In those cases treated within four days of the perivenous injection, a slough has been averted in every instance. In cases seen after four days, a superficial bleb is usually present filled with blood serum. If this type of case were to be treated conservatively, a slough would form equal in size to the diameter of the bleb. I have, however, punctured these blebs, exposing a brownish discolored necrotic dermis. I have then repeatedly injected distilled water into and around this discolored tissue, eventually obtaining a slough which is much smaller than the original bleb and which heals much more quickly than the untreated slough; for it is a distressing fact that the ordinary slough requires from one and a half to three months to heal.

Fig. 2 (case 2).—Varicose veins with positive Trendelenberg phase; centripetal flow through superficial system.

AUTHOR'S SIGN OF IMMINENT SLOUGH

In observing the cases of perivenous injection, I have noted a peculiar discoloration at the site, immediately after the treatment. The skin acquires a blanched bluish hue surrounded by a reddish halo, and

becomes dimpled or slightly invaginated at this point. This presents the first true sign of the escape of solution out of the vein. To be able to recognize this sign and to understand its significance have been important factors in treating these cases, especially when the patient is nervous and high strung and cannot truly distinguish between a cramp and a burn. It has also been a helpful factor in the subnormal patient who cannot describe the pain following the injection, or who feels every symptom suggested by the physician. Occasionally, a patient will actually feel burning associated with a cramp, and yet no discoloration occurs. There is no fear of perivenous injection here, and in no case has a slough formed. Apparently the symptoms depend on where and how the soluton was made, since it was my experience to obtain burning in every case treated one morning from a freshly prepared bottle of sodium chloride. Yet in none of these cases was there any discoloration or slough. The appearance of the blanched bluish discoloration surrounded by a reddish halo, dimpled at its center, is the only true sign of a perivenous injection. It is the only factor that can be relied on. Burning alone, even if intelligently complained of, does not truly indicate a perivenous injection with the possibility of a subsequent slough.

Fig. 3.—Moderate varicosities before treatment.

Occasionally, a vein has been treated, following which there is no evidence of perivenous flow. The patient does not complain of burning, nor is there any characteristic discoloration present. Yet two or three days later the patient returns complaining of burning at the site of injection. Examination now reveals a blanched bluish discoloration with a reddish areola and the usual central dimpling. It is at once apparent that there was a seepage of the solution into the perivenous tissue. Either a loosely applied bandage or muscle action when walking has produced this reflux escape of fluid. In these cases similar injections of distilled water are given, the final result depending on how soon the secondary treatment is instituted.

ULCERS

Varicose ulcers find their prime etiology in the faulty venous circulation through the limb on which they occur. This does not mean that a complete reversal of flow is present, since only an impaired venous return is sufficient to influence the formation of an ulcer. Other factors, however, play important secondary rôles in their production. Infections of the acute or chronic variety diminish the resistance and turgor of the vein wall and its overlying skin to such a degree that, with the aid of the increased venous pressure, extravasation of blood into the subcutaneous tissue is quite likely to occur. These factors alone may destroy the continuity of the skin, or some slight trauma may produce the result. The latter is evidenced in cases of ulcer associated with small fine varicosities, in which a history of trauma is usually obtained.

Regardless of the etiology, I have successfully treated varicose ulcers by the injection method alone. I have chemically obliterated every vein around an ulcer, thus removing the source of seepage and extravasation into the ulcer area which has always kept it open. It has never been necessary to apply paste boots or to employ skin grafts in my series of cases. It is undoubtedly true that the boot firmly supports the leg insuring venous return, thus removing the cause of stagnation of blood. It is to be expected, then, that the tissue will become healthier and the ulcer will close. But there are many cases of secondary ulceration when the boot is finally removed. Since the veins are still present, the etiologic factors remain active. In obliterating the surrounding varicosities, the venous stagnation disappears, the circulation of the extremity is improved, and the ulcer heals. The etiologic factors producing the ulcer have been removed, so that the likelihood of a recurrence is rather remote. In no case that I have treated in this way has there been a recurrence. An ulcer of fifteen years' duration, treated without success by physical therapy, ointments, supportive measures and rest, was cured in three weeks by the injection method. Ulcers without associated superficial varicosities must, of course, be treated by other means.

CONTRAINDICATIONS

At present there are only two important contraindications to the injection treatment of varicose veins. Treatment in cases of phlebitis in the acute or subacute stage should be postponed until the inflammation has definitely subsided. Patients presenting a disturbance of the deep veins should never have their superficial veins obliterated. By means of an elastic stocking, these cases can easily be identified. If the stocking is unbearable and produces numbness and marked pain in the leg, it is evident that the superficial system, even though varicosed, is necessary for venous return.

Diabetic patients should no longer be denied the benefits of this method since there is no added danger of a slough if the injection is given intravenously. Patients suffering with painful varicosities during the first period of gestation can easily be relieved by the injection method. Cases up to the fifth month have been treated successfully. It is, of course, important to abstain from the use of quinine because of its action on the uterus. Similarly, quinine should never be employed in patients who are menstruating. There is

always the danger of inducing a hemorrhage with grave results.

BLOOD CURRENT IN VARICOSE VEINS

Some time ago, I became interested in the fate of the solutions injected and the direction of their flow, with their resultant effect not only on the local vein but on the body in general. I was much interested in de Takáts'[2] determination of the increased pressure in varicose veins and Jentzer's assertion that the flow of blood in a varicose vein is completely inverted. I then heard McPheeters[3] assert that the venous flow in varicose veins was toward the periphery, returning to the general circulation through the communicating veins and the deep system. I observed the roentgenograms presented by McPheeters, which showed the centrifugal flow of an injection solution of iodized oil, thus dispelling the fear of an embolus traveling toward the heart.

Fig. 4.—Same case as in figure 3 after treatment.

I have performed similar tests to determine the flow in varicose veins. I was not so much interested in the direction an embolus would take as in determining the possibility of the chemical entering the general circulation with its resultant effect on patients. In my large series of cases, I have never encountered a case of embolus following the injection treatment. Again, the various microscopic reports on the chemically thrombosed vein present with satisfaction the remarkable adherence which the aseptic thrombus exercises on the venous wall. These two factors are sufficient to dispel any fear of an embolus following thrombosis of the vein; and if the proper technic is employed, one need have no fear of an air embolus, either. It was because of the following data that I was induced to visualize the flow of venous blood.

The injection of as much as 60 cc. of chloride at one sitting produced no generalized ill effects. To be sure, the patient experienced a severe cramp, but this lasted only a few seconds. Yet 2 cc. of quinine hydrochloride and urethane, even when injected as low as the metatarsal region of the foot, produced headache, dizziness, rasping and choking sensations in the throat, coughing, flushed facies and, in one case, syncope. The quinine in such cases has certainly returned to the general circulation to produce its untoward effects. There could not possibly have been a puddling of blood in the varicose vein in an inverted centrifugal flow. Challenged by these symptoms, I was forced to halve the dosage of quinine, never employing more than 1 cc. Yet certain patients who apparently had an idiosyncrasy to the drug continued to experience these ill effects, which were not only disagreeable to the patient but, in one instance, alarming to me. An electrocardiogram indicated extrasystoles and irregular arrhythmia in this instance. Fortunately, the effects disappeared in a few hours. I noted with interest that these symptoms occurred not only in cases presenting a positive Trendelenburg phase but also in those of the double Trendelenburg phase.

I employed two test cases to demonstrate visually the current of blood in the varicose vein:

CASE 1.—The leg presented markedly enlarged varicosities along the internal saphenous vein, extending from the upper thigh down to the ankle. In the upper third of the calf there was a large protruding thin-walled bluish varix, which on closer examination proved to be a penetrating type of vein. By means of my finger, I could invaginate this varix directly into the communicating vein. Tests revealed this case to be one of the double Trendelenburg phase, indicating that the valves in both the superficial and the communicating veins were incompetent. Certainly in this case it appeared probable that the venous blood was stagnant or should flow in the reverse direction. Yet the roentgenogram did not substantiate this belief. The patient was placed in a reclining position with the legs extended horizontally on the x-ray table. The needle was inserted into the large varix, the syringe pointed downward. A mixture of chloride and iodized oil was injected first slowly, observations being made simultaneously with the fluoroscope. The solution immediately began to ascend along the superficial vein and then gradually began to fill the varix completely. One could clearly see how the fluid entered the communicating vein but did not pass through to the deep circulation. Then the remainder of the solution was injected with considerable force, and most of it ascended the superficial vein. A small amount descended; yet none entered the deep circulation.

Fig. 5.—Extensive ulceration associated with marked varicosities.

2. De Takáts, Géza: The Impairment of Circulation in the Varicose Extremity, Arch. Surg. **18**: 671-686 (Feb.) 1929.
3. McPheeters, H. O.: Varicose Veins, Journal-Lancet **49**: 243-246 (June 1) 1929.

The roentgenogram confirmed my observations under the fluoroscope. The syringe was strapped to the leg with adhesive tape and a plate was made. A puddling could be observed at the site of injection and a filling of the varix and the communicating vein, but the flow stopped here. It did not enter the deep circulation. The definite curved boundary line limiting the flow of the solution here almost suggested a limiting membrane, a valve which prevents the flow beyond this point. The venous pressure in the deep system must have been tremendous to halt this flow, since I used considerable force in injecting the varix. The increased pressure was borne out by the fact that the plunger was forced back into the syringe about three-fourths inch, becoming filled with reflux chloride and a small amount of iodized oil. In addition, this pressure forced the iodized oil solution back through the superficial system as high as the junction of the middle and lower thirds of the thigh.

In all this procedure, the patient lay perfectly quiet. After the plate was made, fluoroscopic observations were continued. The solution was gradually ascending the thigh through the superficial system. Slight passive and then active motion hastened its centripetal flow. The patient was then allowed to get up and walk about. Later fluoroscopic examination was negative, no evidence of the iodized oil being found in the foot, leg or thigh. Yet this case was one of the double Trendelenburg phase, in which reversed flow supposedly exists.

Fig. 6.—Same case as in figure 5 after chemical obliteration of the surrounding veins.

CASE 2.—The leg presented varicosities of the tortuous large variety, extending from the thigh to the ankle. No varix of the penetrating type was present, however. Tests revealed a positive Trendelenburg phase alone. The same technic was employed here, the needle being inserted in a downward direction. However, in this case, it was impossible to strap the syringe to the leg, so that in holding the syringe while the plate was taken I unwittingly moved toward the foot of the table to make room for the x-ray tube on its sliding post, thus changing the position of the syringe. However, the solution was injected toward the foot, as it was in the previous case. Here, again, the bulk of the solution ascended in the superficial system of veins. And here, again, passive and active motion and later walking forced the solution up beyond the thigh.

It is apparent that the results obtained do not substantiate the impression that the venous current flows in a reversed direction in cases of either positive or double Trendelenburg tests. Case 1 presented large veins of the saccular, tortuous and penetrating type, and yet the current was centripetal. In both these cases there was subsequent obliteration of the veins from the site of injection up to the level of the knee. Clinically this is substantiated too not only by the untoward symptoms experienced by patients but by the fact that veins are obliterated to a considerable extent proximal to the site of the injection.

It is conceivable that the venous flow might be entirely reversed in very extreme cases; yet it is my opinion that this phenomenon exists less frequently than is supposed. It is with this in mind that I select the chemical to be employed with great care and minimize the dosage of those drugs to which patients may have idiosyncrasies.

CONCLUSIONS

Sodium chloride is still the safest and most reliable solution to be used.

In the very large and especially the penetrating type of veins, the double tourniquet method gives the best results, an equal mixture of chloride and salicylate being employed.

Quinine should be used with care and never more than 1 cc. at a sitting.

Sloughs can be prevented by the use of sterile water when solutions have escaped around the vein. One should not rely alone on the patient's complaint of burning but should look for the blanched bluish discoloration with its reddish areola and the central dimpling.

Emboli should not be feared since the microscopic nature of the chemical thrombus and the vast number of cases treated by the injection method without embolus speak against it.

Complete reversal of the venous current is not as common as is ordinarily supposed.

Diabetes is no contraindication to the injection treatment.

Fine horsehair veins can be successfully treated by the author's scarification process.

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Inherited Values.—The term human constitution should connote that aggregate of hereditarial characters, influenced more or less by environment, which determines the individual's reaction, successful or unsuccessful, to the stress of environment. But it is not always easy to decide which of the so-called inherited values are true germ plasm transmissions, as for example eye color, and which are habit or imitative characters, such as certain family tricks of gait or gesture. It is not impossible that many familial functional disturbances, such as morning headache, dysmenorrhea, or phobias of various sorts, are of this nature. Consequently there are in general two factors at work in the formation of an individual's constitution. One of these is the expression of qualities which are inherent in the germ plasm and are, so far as we know, passed on from one generation to another through the physical agency of the chromosomes. This factor is truly inheritable. Technically it is known as the idiotypic or genotypic factor. The other element expresses the effect of environmental influence and is noninheritable. It is spoken of by some as the paratypic factor.—Draper, George: Disease and the Man, New York, Macmillan Company, 1930.

OVARIAN HEMORRHAGE *

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One of the conditions most difficult to diagnose clinically with any degree of certainty is hemorrhage of the ovary. In most instances the true source of the bleeding is recognized only during operation. The condition is usually seen in young women about the time of the menstrual period, and the bleeding often appears simply as an exaggeration of that which takes place when the ovum is normally discharged from its follicle.

Two types of ovarian hemorrhage may be distinguished: In one, the bleeding is primary; in the other, it follows rupture of a hematoma. The etiology of the primary form is given by Wilson [1] as follows:

> As the menstrual period approaches, there is an increased flow of blood to the pelvic organs. This results in intra-ovarian tension and forces the maturing follicle toward the point of least resistance, the periphery of the gland. At a bloodless and thinned-out portion of the surface of the ovary—"the stigma"—the follicle eventually ruptures intraperitoneally. The ovum, together with the degenerated cells of the membrana granulosa, is discharged. Hemorrhage then takes place into the follicular cavity. In normal conditions a rounded clot is formed filling the ruptured follicle, but occasionally this does not occur and the patient early shows signs of severe intra-abdominal trouble. As the bleeding increases, symptoms of shock combined with other signs of internal hemorrhage appear, until in certain cases it may become necessary to interfere surgically.

According to Novak,[2] the dividing line between physiologic and pathologic bleeding is no more definite than that between normal and excessive menstrual bleeding. Novak believes that no organ is so frequently the seat of hemorrhage as is the ovary and that hematomas result from bleeding into the ruptured follicle or into the corpus luteum in a large proportion of cases.

Savage [3] asserts that follicular hematomas result from premature ripening of the follicles, and that they are brought about, first, by the presence of an increased amount of blood in the ovary (aside from that found in the normal yellow body); secondly, by a pouring of blood into the follicles from the vessels of the theca interna, and, thirdly, by a lack of retrogression in the follicles themselves which sometimes permits blood cysts to persist. Although follicular hematomas are frequently found in the ovary, rupture with hemorrhage is not of common occurrence.

Novak, in a study of eighty-five ovaries removed during the course of intrapelvic surgery, found that forty, or almost 50 per cent, contained hematomas of varying size. The majority of these were small and would probably in time have undergone absorption. Rupture with loss of blood is extremely unlikely in this variety. Novak's observations led him to believe that hematomas are most commonly found in ovaries removed at or about the time of ovulation; i. e., from seven to sixteen days after menstruation.

Phaneuf [4] divides hematomas of the ovary into four groups, namely:

1. Large ovarian cysts with hemorrhagic contents due to torsion of the pedicle.
2. Hemorrhagic cysts of the Sampson type ("chocolate cysts").
3. Hematomas of the graafian follicles.
4. Hemorrhagic cysts of the corpus luteum.

Rupture of any of these types may give rise to severe intraperitoneal hemorrhage. The first group, according to Phaneuf, is rarely associated with intra-abdominal hemorrhage. The second variety does not provoke gross bleeding, which is explained by the common observation that cysts of this type are, first, usually small and, secondly, usually limited by circumjacent adhesions. It is the third and fourth types therefore—follicular and corpus luteum—that rupture with intraperitoneal hemorrhage and are commonly found.

The question now arises as to the probable cause of these hemorrhages. In the first group, the causes are all predisposing rather than exciting, while in the second group there is more likely to be a definite exciting cause.

The predisposing causes are general rather than local and among them are typhoid and scarlet fever, general disorders of the heart and liver producing venous congestion of the abdominal viscera, general disorders of nutrition (anemia, chlorosis, hemophilia), phosphorus poisoning, influenza and rheumatism.

Fig. 1.—Ruptured corpus luteum cyst: *A*, blood clot lining cyst; *B*, lutein cells in wall of cyst; *C*, connective tissue in ovary around cyst.

The local and exciting causes are passive hyperemia, thrombosis, torsion, chronic oophoritis, tumors of the small pelvis, uterine retroflexion, inflammatory processes, sudden checking of normal circulation (e. g., by torsion of a pedicle), and trauma. Under the heading of "trauma" come coitus during the late period of vascularization; the passage of large hard rubber vaginal douche nozzles for the purpose of enemas, criminal abortion, vaginal operations or therapeutic manipulation; sports (tennis, riding or rowing), and straining at stool. The following cases, collected from the literature, may serve as illustrations of these causes:

Kermauner orally described to Heidler [5] a case in which, following a hot bath and cohabitation, the patient awoke after two hours of sleep with violent pain in the right side of the abdomen. A surgeon was summoned and diagnosed appendicitis. Laparotomy showed a large quantity of free blood in the abdomen, proceeding from a bleeding follicle of the right ovary. Resection of the ovary was followed by recovery. The microscopic examination showed no evidence of pregnancy.

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1. Wilson, H. W.: Lancet **1**: 1196, 1905; **1**: 1162, 1905.
2. Novak, Emil: Bull. Johns Hopkins Hosp. **28**: 349, 1927.
3. Savage, S.: Brit. Gynec. J. **21**: 285-305, 215-321, 1905-1906.
4. Phaneuf, L. E.: Intraperitoneal Hemorrhage from Ruptured Ovarian Cyst, J. A. M. A. **83**: 658-662 (Aug. 30) 1924.
5. Heidler, H.: Zentralbl. f. Chir. **50**: 642, 1923.

Hadden [6] reports a cyst of the graafian follicle ruptured by the insertion into the rectum of a large, rubber vaginal douche nozzle for the purpose of enemas.

The patient experienced considerable pain on the left side on insertion of the tube. Shortly afterward she suffered an attack of acute abdominal pain followed by vomiting, which persisted until the next morning, when a physician was called. Physical examination showed tenderness and rigidity on the right side of the abdomen, most marked in the region of the cecum. The left side was flaccid and not tender. The temperature was 100 F. and the pulse rate 87; the white cell count was 10,500, with 78 per cent polymorphonuclears. Pelvic examination showed a normal uterus, with no indication of ovarian complications. When the peritoneum was opened, the abdomen was found full of bright blood. The right ovary was healthy, but the left (found in proper position) was bleeding freely from a ruptured graafian follicle cyst about one-half inch in diameter. The hemorrhage was controlled and the appendix was removed. The rate of bleeding from the ruptured follicle was of such

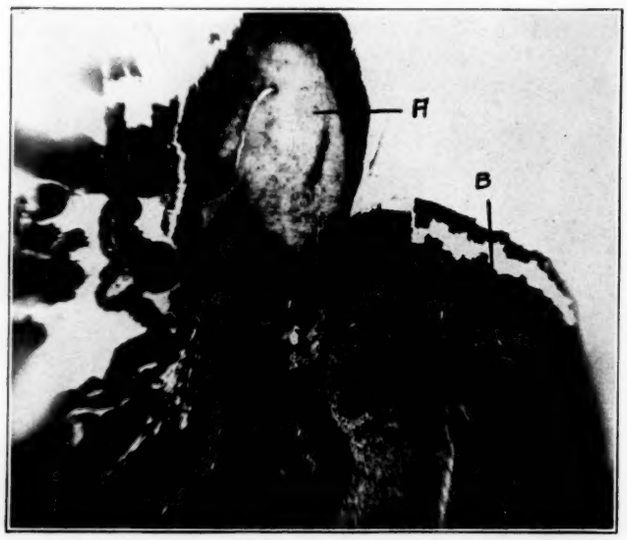

Fig. 2.—Ruptured corpus luteum cyst: *A*, blood clot in ruptured area; *B*, torn edge of cyst showing lutein cells.

degree that, in time, the patient would certainly have presented symptoms of abdominal hemorrhage, but the primary symptoms were those of acute appendicitis. Recovery was uneventful.

Primrose,[7] in 1912, reported two cases of hemorrhage into the peritoneal cavity by accidental rupture of the ovary. One was the rupture of a normal graafian follicle as the result of an accidental strain. The other case was caused by a violent attack of vomiting in an early stage of acute appendicitis.

Ferguson [8] reports a case in a woman, aged 37, who after a supravaginal hysterectomy developed signs of internal hemorrhage, which was subsequently found to be due to a ruptured corpus luteum cyst.

The operation performed by Ferguson was a simple one, the tubes and ovaries being left intact. During the operation a large corpus luteum was noticed in the right ovary. The operation was performed at 9:30 a. m., and at 5 p. m. the patient presented all the signs of profuse abdominal hemorrhage. The wound was reopened under anesthesia, and a large quantity of clotted and fluid blood was found in the peritoneal cavity. Dr. Ferguson found that the bleeding had come from the corpus luteum seen at the operation. The appendage was removed, and the patient recovered.

6. Hadden, D.: Female Mammae in Relation with Pelvic Organs, Am. J. Obst. & Gynec. **5**: 536 (May) 1923; Abdominal Hemorrhage from Ruptured Graafian Follicle Cyst. **7**: 600-601 (May) 1924.
7. Primrose, Alexander: Hemorrhage into the Peritoneal Cavity Caused by Accidental Rupture of the Ovary, Ann. Surg. **56**: 125, 1912.
8. Ferguson, J. H.: Edinburgh Obst. Tr. **37**: 307, 1911-1912.

Phaneuf reports the case of a young woman physician who, following an automobile accident in which she sustained injuries of the left upper arm and left thigh, developed sharp pains across the abdomen.

Another physician made a diagnosis of contusions. After the accident she was considerably hindered in her work by the sharp pains across the abdomen. The accident occurred, April 22, and all through April and May the pain persisted, accompanied by constant nausea. The driving of a car would cause excruciating pain radiating toward the thigh and symphysis. She continued work until August 5, however, despite the pain. On that day her right leg became rigid, and she had "terrific pain in the abdomen." The following day at 1 p. m. she was "doubled up with pain"; the right leg was flexed, and the abdomen distended. Her bowels had not moved for three days, and micturition was very painful. She herself was a physician, and she diagnosed the condition as an ovarian cyst with twisted pedicle. Later in the evening she was seen by a surgeon, who made a diagnosis of appendical abscess. By August 10, the abdomen was rigid, spastic and distended. The rectal examination was unsatisfactory, as it caused too much pain. The preoperative diagnosis was acute appendicitis or right ovarian cyst with a twisted pedicle. A right oophorectomy and appendectomy were performed at the Springfield Hospital, August 10, and the condition was found to consist of a ruptured ovarian cyst (right), chronic appendicitis, and severe intraperitoneal hemorrhage.

Although definite predisposing factors had been at play in each one of these cases, none of them had been properly diagnosed, simply because the abdominal symptoms so closely resembled other conditions.

Wilson, in 1904-1905, saw five cases of ovarian hemorrhage occurring at or about the time of the menstrual period. In two patients the gland was found ruptured, with a mass of blood in the Douglas pouch giving rise to a localized peritonitis.

In reporting these cases, Wilson said that they illustrated the extreme importance of carefully going into a woman's menstrual history even though the pain was not within the limits of the "genital sphere." He added that cases are occasionally seen which in many respects closely simulate acute abdominal conditions, such as perforated gastric ulcer; but, on examination, the patient is found to be menstruating and, if she is put to bed and kept at rest, the condition, whatever it may be, clears up in a week or ten days.

In 1906 he presented a case which proved his theory:

A girl, aged 15, had never menstruated. Her first period began, and was complicated by a sudden attack of severe hypogastric pain and some vomiting. There was a slight vaginal discharge for two days. On admission the patient looked ill and distressed. The temperature was 99.8, the pulse 104. The patient complained of a "bursting feeling in the pelvis." An elastic, tender swelling, about the size of a tangerine, was found in Douglas' pouch. It was not sharply defined and did not have any outline except that of the peritoneal reflection. A sound passed 2½ inches in front of the concavity. The uterus was fixed. Within two days the temperature had fallen to normal and the pain had disappeared. When the patient was examined the following month, nothing was found except a slight thickening in the right posterior quarter of the pelvis.

There can be little doubt that this was a case of pelvic hematocele due to a ruptured graafian follicle which rapidly cleared up.

Schumann,[9] in 1921, cited three cases in young girls during early menstrual periods which gave all the signs of intraperitoneal hemorrhage. The patients were not operated on and all recovered. Schumann states that

9. Schumann, E. A.: Observations on Hemorrhages of Ovarian and Tubal Origin Not Associated with Ectopic Pregnancy, J. A. M. A. **77**: 692 (Aug. 27) 1921.

ovarian hemorrhages are more or less functional errors —i. e., excessive bleeding from the wall of the mature graafian follicle in an adolescent ovary—and as there is no demonstrable morphologic change present in the tissues, he feels that normal ovaries do not give rise to massive hemorrhages.

There is no doubt that Schumann's policy of nonintervention is good when the hemorrhage is primary; but when it is secondary such a policy may be harmful.

Kennedy,[10] in 1925, reported a case in which, because of difficulty in diagnosis, the patient was taken to the hospital for observation:

A married woman, aged 25, was taken suddenly ill at 11 a. m. with severe pain in the epigastrium. The pain was constant and radiated to the upper part of the back between the shoulder blades. Three hypodermic injections of morphine and chloroform were required for its relief. At 11:30 the leukocyte count was 16,000; at 2:30 it was 20,000. During the day the patient vomited three times, and in the afternoon she had a chill. She began to complain of pain in the right shoulder and of soreness all over the body except in the hands and feet. Late in the afternoon, an eruption appeared about the neck, upper part of the chest, and shoulder. By the morning of the second day the leukocyte count had reached 34,000. The pain in the right shoulder had disappeared, but the patient complained of a similar pain in the left knee. The rash persisted. At examination, twenty-four hours after the onset of the condition, she appeared quite ill. There was a marked circumoral pallor. The pulse was 28 beats to the quarter and was regular. The heart sounds were clear and tumultuous. The second pulmonic sound was accentuated. The chest was normal. The abdomen was symmetrically distended. Breathing was confined almost entirely to the thorax. On auscultation over the abdomen, no peristalsis was noted. There was considerable tenderness and muscle spasm over the whole abdomen. Bimanual examination showed slight tenderness in the right vault. A catheterized specimen of urine showed a decided trace of albumin, 50 pus cells to the field, and 40 red blood cells. White blood cells numbered 34,000. A preoperative diagnosis being impossible, laparotomy was performed twenty-four hours after the onset of symptoms. The abdomen was full of bloody serum which came from a large, ruptured, right ovarian cyst. The cyst was removed, and the patient made a normal convalescence.

Kennedy states that, had the serum rash been rightly interpreted, this very obscure case could have been diagnosed prior to the operation. The symptoms of serum absorption which this patient manifested, namely, the rash, joint pains, and muscle soreness, in the presence of acute abdominal symptoms should lead one to suspect blood or serum in the abdominal cavity.

Ravdin,[11] Hadden and Korach[12] have all described patients suffering from ovarian hemorrhage who were operated on for appendicitis and in whom normal appendixes were found. In each case an ovarian hemorrhage had been the cause of the symptoms suggesting appendicitis.

REPORT OF CASE

The following is a description of a similar case of my own:

The patient was sent in to the hospital for an appendectomy. On physical examination she was found to be well nourished, with normal heart and lungs. There was tenderness over the lower portion of the abdomen, more marked in the region of the appendix, with slight rigidity at the lower portion of the right rectus muscle but no rigidity on the left side. The patient kept her thighs drawn up to obtain some relief from the pain.

Vaginal examination showed the uterus to be normal in size and position, freely and painlessly movable. No mass could be felt in the region of the left ovary, nor was any resistance encountered in the left lateral fornix. Deep palpation on the right side excited pain, but no mass formation could be found.

The leukocyte count was 11,000, the temperature 100.4 and the pulse 110 beats a minute, regular and of good volume.

The patient was 28 years of age. She had one child, aged 5 years, and there was no history of miscarriages. Her menstrual periods had not been regular, quite frequently recurring twice in four or five weeks, and lasting for seven days. Her last period had occurred three weeks before she entered the hospital.

Just before the operation, the patient was suddenly seized with pain on the right side and in the rectum. There was no vomiting.

A longitudinal incision was made at the outer border of the right rectus muscle. When the peritoneal cavity was entered, bright red blood welled up into the wound. The appendix was examined and showed no evidence of inflammation. The right tube and ovary were delivered through the incision and found to be normal. The left ovary was enlarged to the size of a lemon, while the left tube showed nothing pathologic. This enlarged ovary was pulled into the incision and removed; the appendix was also removed, and the incision closed in layers. The patient made an uneventful recovery.

Dr. Frank Konzelman, pathologist, who examined the removed ovary, submitted the following report: "The ovary measured 5 by 3 by 2.5 cm. and was preserved in a diluted 'solution of formaldehyde-U. S. P. (1:10).' Its surface was gray and smooth. The organ was firm. A large part was represented by a ruptured cyst. The inner wall of the cyst was covered by clotted blood, which also protruded from the point of rupture. In the ovarian tissue and in the wall of the cyst were several red, jelly-like masses.

"The ovarian stroma was dense. Many thick-walled vessels were present. Several small cysts lined by flat cells were observed, filled with a homogeneous material. Several corpora albicantia were seen. In some parts of the ovary there were diffuse infiltrations with mononuclear cells. The inner lining of the large cyst was frayed, and much blood was enmeshed in this frayed connective tissue. No limiting cell membrane could be seen. In some places there was a band of large, pale, polyhedral cells, instead of the frayed hemorrhagic tissue. This band followed a wavy course, and the crest of each wave, supported by a central core of connective tissue, projected into the cyst like a small papilla. The whole was covered by clotted blood. The cells forming the band were arranged in columns perpendicular to the long axis. Their cytoplasm was foamy, and each cell had a large, round, reticular nucleus. Throughout the course of this structure along the cyst wall, a gradual loss of the columnar arrangement was apparent. The cells became flat and formed layers parallel with the cyst wall, and intermingled with and became indistinguishable from the migratory cells (leukocytes) and the connective tissue cells of the stroma. Large areas of hemorrhage were found beneath these cell layers in the ovarian stroma. In another section examined, the large cells just described lacked an orderly columnar arrangement and evidenced great disorder. They varied in size, shape and polarity and presented a ragged surface toward the lumen of the cyst. In the study of what seemed to be the point of rupture, one might infer from the folded and distorted wall that before the break occurred the cyst projected from the surface, and that directly beneath the peritoneum at this point lay these peculiar polyhedral cells, flattened and degenerated.

"The pathologic diagnosis was ruptured corpus luteum cyst."

The possibility of a subsequent luteal cell tumor is not to be forgotten.

CONCLUSION

I most heartily agree with Ravdin, who says that it is best to operate in all cases of this type, even when the symptoms are mild, as a definite diagnosis cannot be made without laparotomy nor the possibility of continued bleeding be estimated.

248 South Twenty-First Street.

10. Kennedy, J. P.: Ruptured Ovarian Cyst with Serum Rash, J. A. M. A. **85**: 517 (Aug. 15) 1925.
11. Ravdin, I. S.: S. Clin. North America **3**: 275 (Feb.) 1923.
12. Korach: Appendicitis and Ovarian Hemorrhages, München. med. Wchnschr. **72**: 1199 (July 17) 1925; abstr. J. A. M. A. **85**: 711 (Aug. 29) 1925.

Clinical Notes, Suggestions and New Instruments

GONORRHEAL INFECTION OF BONE

H. E. BARDENWERPER, M.D., MILWAUKEE

Gonorrheal infection of bone, particularly in the female, is of sufficient rarity to warrant consideration. Medical textbooks speak of gonorrheal arthritis, periarthritis and tenosynovitis but scarcely mention gonorrheal osteomyelitis or periostitis. Stark [1] gave a comprehensive review of the subject in 1913, with a bibliography of the literature up to that time.

The case reported here occurred in a young unmarried woman, aged 20, who, when seen, Jan. 2, 1924, stated that she had noticed symptoms of a genital infection for a week. She complained of rheumatic pains in the shoulders and hips. Examination revealed gonorrheal cervicitis and bartholinitis. The Wassermann reaction was negative throughout the course of treatment. Local treatment and gonorrheal vaccine injections were instituted. After five days a periostitis of the left seventh and eighth ribs posteriorly developed. Four days later there was pain in both wrists and extensor tendons of the fingers. Three days later there was much pain in the back, right wrist and left elbow. The temperature was 101 F. When the patient was removed to the Milwaukee Hospital, January 17, the left wrist and elbow were much swollen. Sodium salicylate, morphine sulphate and gonorrheal vaccine were given, while hot magnesium sulphate packs and electric heat were used over the joints. January 24, slight fluctuation was present. Under gas anesthesia the sheath of the left extensor carpi ulnaris was incised, revealing a slight serous tenosynovitis. A small amount of

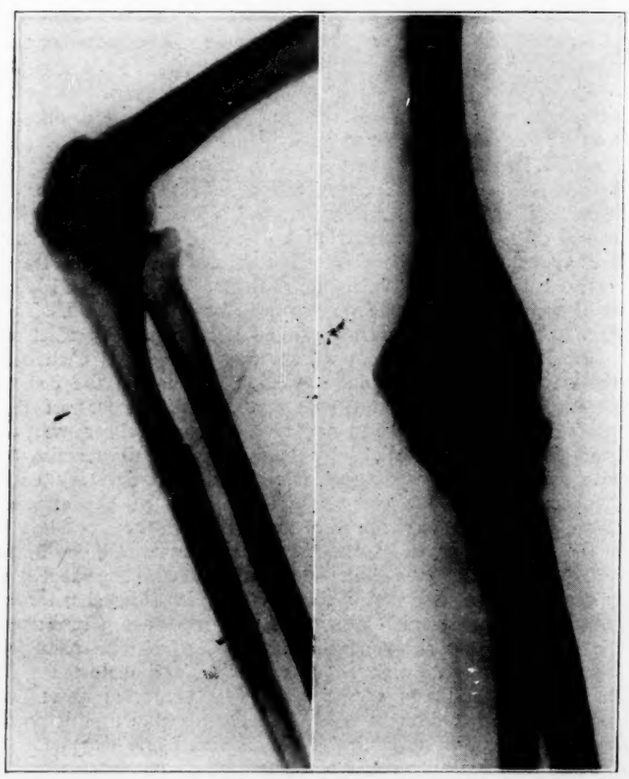

Fig 1.—Appearance of the bone, Aug. 1, 1924, showing advanced osteomyelitis involving the olecranon process and upper portion of the ulna; arthritis of the elbow joint, and fracture of the ulna with osteomyelitis about the fracture.

serosanguineous material was aspirated from the left elbow. The pathologist examined a smear of the joint fluid and reported "pus cells and a few diplococci, not inconsistent with gonococci."

1. Stark, M. M.: Gonococcal Invasion of Bones, Am. J. Surg. **27**: 456 (Dec.) 1913.

After this there was noticeable improvement. The affected parts moved more freely and with less pain. It was soon necessary to use forceful extension of the elbow and rotation of the wrist. Periarticular swelling was, of course, considerable. There was an elevation in temperature after each manipulation, but joint movement was improved. February 20, it seemed that an abscess was forming in the left elbow. Signs of this, however, soon began to decrease. March 17, definite deposits in and about the left elbow could be felt. The left knee and wrist

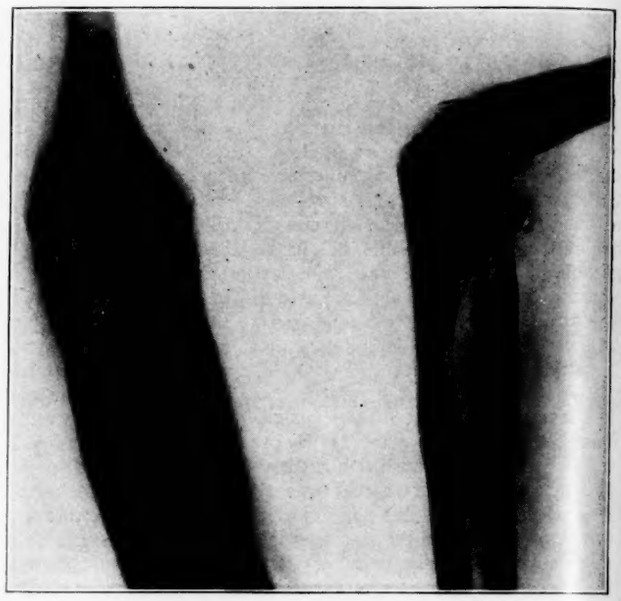

Fig. 2.—Ostearthritis involving the elbow joint and surrounding bone; the fracture of the ulna is partially united at an obtuse angle.

were somewhat sore. During this time 10 grains (0.65 Gm.) of potassium iodide was given after each meal. June 30, adhesions in the left elbow were felt to break on forceful passive motion. Each time this happened the joint became very sore.

July 9 a slight periostitis was noted on the undersurface of the middle of the left ulna. July 31, while the left elbow was being passively moved with moderate force, the forearm being splinted by the hand of the operator, the left ulna was felt to fracture about 3 inches below the elbow at the site of inflammation. The patient was at once advised as to what had happened. A splint was applied and morphine was given.

Roentgenographic examination the next day at the Seelman Laboratory revealed an advanced osteomyelitis involving the oleocranon process and the upper portion of the ulna. There was marked arthritis in the elbow joint. There was also a fracture through the ulna at about the juncture of the upper and middle third of the shaft, with some osteomyelitis about the fracture (fig. 1).

Treatment from then on consisted of splints to the forearm and a continuation of passive elbow movement, potassium iodide, and elimination of the local infection.

October 3 the Seelman Laboratory reported that the roentgenogram showed an ostearthritis involving the elbow joint and surrounding bone. There was a fracture of the ulna, partially united at an obtuse angle (fig. 2).

In December, smears from the sites of genital infection were negative. The patient married in March, 1924, during the height of the infection, and in December, 1924, definitely exposed her husband without resulting infection.

December 15, the Seelman Laboratory reported that roentgenograms showed the fragments of the old fracture united at an obtuse angle. A small amount of callus surrounded the broken bone. There was no evidence of inflammation at this time. The bones of the elbow joint showed a slight atrophy. The density of the olecranon was increased. There seemed to be an ankylosis between the ulna and the humerus. The tip of the ulna was pointed, and the ulnar surface of the humerus

showed an exostosis. The joint space between the radius and the humerus was normal. The synovial membrane showed a slight calcification. The diagnosis was healed fracture of the ulna; osteomyelitis of the olecranon in the stage of repair, and arthritic deformation of the elbow joint (fig. 3).

At this time the patient was able to work as a stenographer and typist. She has been seen by me many times since and has no complaints. With the exception of some slight loss of extension, the arm is as good as ever.

This case has taught me a number of things. It again illustrates the fallacy of trying to save money for a patient by not insisting on roentgenograms when they appear warranted. In fact, I would lean toward the advisability of roentgenograms when there appears but little need for their diagnostic or confirmatory evidence. A roentgenogram of the ulna when periostitis was noted would probably have saved the fracture occurring, with needless distress on the part of the patient and considerable anxiety on my part in the face of a possible malpractice action.

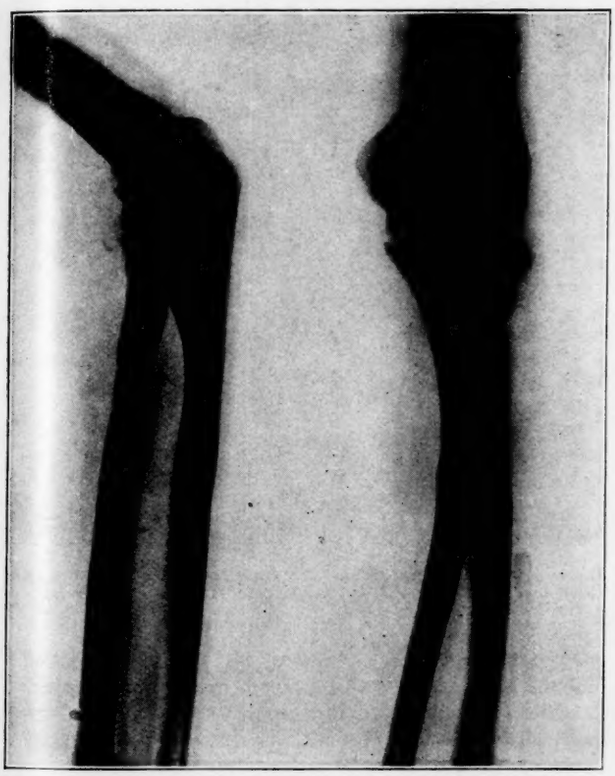

Fig. 3.—Appearance of the bone, Dec. 15, 1924, showing healed fracture of the ulna; osteomyelitis of the olecranon in the stage of repair, and arthritic deformation of the elbow joint.

As to the manipulation of diseased joints, I feel that they should be moved as soon as the patient will bear the pain. Contractures and adhesions form very fast and are scarcely to be overcome if allowed to become firm.

As to whether gonococcus vaccine in relatively large doses given rather frequently, as was done in this case, is advisable, I am inclined to doubt. Rather, I would follow the advice of Pelouze of Philadelphia, who in his textbook on the treatment of gonorrhea advises the use of small doses of vaccine, and then only at the onset of arthritis, on the theory that small amounts of antigen hasten and large amounts slow and at times inhibit the production of an immunity reaction.

The rather rapid and satisfactory union of the ulnar fracture in the presence of a stripping periostitis and an osteomyelitis, due most probably to the gonococcus, is most satisfactory. It might be deemed advisable to incise the periosteum at the first sign of swelling or pain, and in some cases probably the osteomyelitic area should be attacked surgically; but at least in this case it was not done, and I believe that the results warranted the conservative treatment.

1126 State Street.

LEAD MARKERS IN ROENTGEN EXAMINATION OF DISEASES OF THE CHEST

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Professor of Clinical Medicine, Tulane University of Louisiana School of Medicine

One of the principal difficulties experienced in reaching an accumulation of fluid in the chest is selecting the most favorable point of entry on the chest wall.

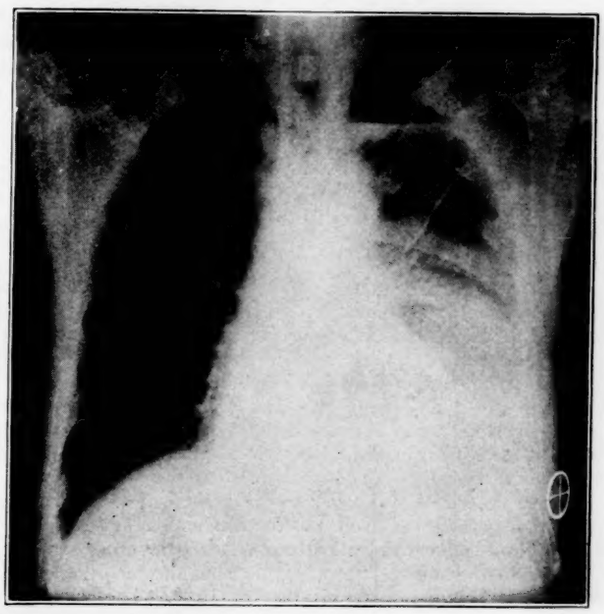

Fig. 1.—The large marker on the left side of the chest indicates the proposed site for aspiration puncture.

The accompanying illustrations from films made by Dr. Magruder at the Baptist Hospital show my use of lead markers in roentgen examinations in pleurisy. I have been using them under two circumstances:

1. Before having the first picture made, if aspiration is considered a possibility, what appears to be the most favorable site

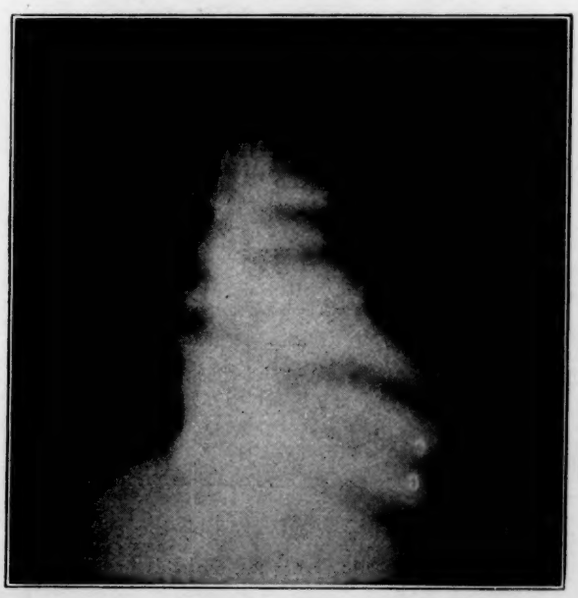

Fig. 2.—The three markers on the left side of the chest indicate the puncture wounds of previous aspirations.

is marked with a lead letter, held in place by a strip of adhesive tape. This is allowed to remain on the patient until after the film has been developed and the operator is then in a better position to judge as to whether or not the proposed site is the

most desirable. Should the marker appear on the film as not in the proper position in relation to the fluid accumulation, it is possible to select the proper site for puncture by measuring from the spot indicated.

2. When a puncture of the chest wall has once been made, in subsequent pictures all puncture wounds are indicated by lead markers which show on the film and enable the operator to judge as to the most favorable location for the next puncture. This procedure eliminates much of the element of guess from aspiration.

It is only reasonable to suppose that this plan would be of value in directing the necessary surgical procedures in pericardial accumulation, abscess of the lung and possibly other conditions.

CROSS STRIATIONS OF THE MUSCLE FIBERS OF THE SINO-AURICULAR NODE

PHOTOMICROGRAPHIC REPRODUCTION *

WALLACE M. YATER, M.D., WASHINGTON, D. C.

A fairly careful search of the literature failed to reveal photomicrographic reproduction of the cross striations of the muscle fibers of the sino-auricular node. These striations have been well described and drawings have been made. In the average section they are often invisible; in some, however, they are visible with the ordinary high power objective. The fibers bear a striking resemblance to the cardiac muscle fibers but are much smaller. They do not have any characteristics of nerve tissue.

I [1] have described a simple routine method of examining the sino-auricular node as well as the conduction system of the heart. The accompanying illustration shows the cross striations distinctly in the muscle fibers of the sino-auricular node of a human heart, with a magnification of 1,200. The nucleus of the fiber running obliquely across the figure is in the lower left hand corner. The black tissue is a mass of connective tissue stained dark red with van Gieson's picrofuchsin stain.

Muscle fibers of the sino-auricular node in the heart of a man; × 1,200.

The node normally contains much more connective tissue between the interlacing muscle fibers than is present in the myocardium.

* From Georgetown University School of Medicine.

1. Yater, W. M.: Pathologic Changes in Auricular Fibrillation and in Allied Arrhythmias, Arch. Int. Med. **43**: 808-834 (June) 1929.

CROSSED RENAL ECTOPIA

TOM R. BARRY, M.D., AND FRED K. GARVEY, M.D.
KNOXVILLE, TENN.

In 1925, Kretschmer [1] reviewed the literature on crossed renal ectopia and found eighty-seven previously reported cases. In his article he mentions four additional ones, bringing the total to ninety-one. The cases of Beebee,[2] Compton [3] and Smith [4] were not included in this publication, which would bring the previously reported cases to ninety-four, to which I am adding an additional case referred through the courtesy of Dr. R. H. Newman.

Crossed renal ectopia, showing left catheter ascending in a normal position and right catheter crossing to the midline at about the level of the fourth lumbar vertebra and ascending upward to the level of the third lumbar vertebra, where it reaches the pelvis of the lower half of the fused kidney.

REPORT OF CASE

A white woman, aged 28, single, consulted an ophthalmologist on account of some visual disturbance. The examination at this time showed a low grade hyperopic astigmatism associated with an exudate almost filling the entire right disk and extending to the nasal side of the disk. The details of the fundus could not be made out. There were several dark detached opacities in the vitreous. The left fundus was normal. On account of these observations, together with a history of dysuria and incontinence when standing, the patient was referred for urologic study. The catheterized bladder urine showed from 60 to 70 white blood cells to the field with an occasional red blood cell. There was a 2 plus albumin with many hyaline and granular casts.

On cystoscopic examination the bladder showed an intense trigonitis, sufficient to account for the incontinence. Both ureters were normal in location and appearance and easily catheterized the full distance. The urine from the right catheter contained from 40 to 50 white blood cells to the field with *B. coli* on culture. The urine from the left was microscopically

1. Kretschmer, H. L.: Unilateral Fused Kidney, Surg. Gynec. Obst. **40**: 360-366 (March) 1925.
2. Beebee, M. L.: Crossed Ectopic Kidney, Colorado Med. **24**: 255-256 (Aug.) 1927.
3. Compton, A. J.: A Case of Crossed Dystopia of the Kidney, Lancet **1**: 810 (April 17) 1926.
4. Smith, P.: Crossed Ectopia of the Kidney, Cincinnati J. Med., 1924.

and culturally negative. Phenolsulphonphthalein appeared from the left catheter in three minutes in good concentration, and from the right in six minutes with much lessened concentration.

Roentgenograms with catheters in place showed the catheter on the left side ascending in a normal position. The catheter on the right side crossed to the midline at about the level of the fourth lumbar vertebra and ascended upward to the level of the third lumbar vertebra, where it reached the pelvis of the lower half of the fused kidney. Bilateral pyelograms showed complete rotation of both kidneys with hydronephrosis. Subsequent to pelvic lavage, the urine from both kidneys was sterile on culture. The former incontinence entirely disappeared.

Eye examination five months later showed normal vision in both eyes, though the field of vision still showed a distinct gap corresponding to a lesion in the retina.

601 Walnut Street.

NEVUS PIGMENTOSUS ET PILOSUS VERRUCOSUS: ITS REMOVAL BY MEANS OF ELECTROCOAGULATION

ERNEST K. STRATTON, M.D., SAN FRANCISCO

Of the various methods now in use to destroy birthmarks, that of electrocoagulation in the treatment of nevus pigmentosus et pilosus verrucosus seems particularly successful.

Although radium and carbon dioxide snow therapy give the best results in the removal of angiomatous nevi, and surgical excision, cautery or electrolysis yield equally good results in

Fig. 1.—Appearance of growth, May 13, 1925, before treatment.

the removal of the fibromatous types, the methods for removing the particular type here described (fig. 1) are practically limited to surgical excision with skin grafts or electrocoagulation.

Having observed the results obtained by the former method in several instances, I am, by comparison, particularly pleased with the outcome in this case.

REPORT OF CASE

E. B., a girl, aged 10 months, when first seen, May 13, 1925, presented a rather large, black, pigmented and hairy nevus, 6 inches in diameter in all axes, extending up into the scalp, over the left cheek to within one-half inch of the nose, and encircling the outer canthus of the left eye. The anterior and posterior surfaces of the left ear also were involved. Many areas, especially that portion on the left cheek nearest the midline around the eye, as well as the lower portion of the left ear, were verrucous. It had been present since birth without change. The baby was normal in other respects. Roentgenograms of the chest and abdomen were negative, and neither parent had any similar growth.

I destroyed the growth in five stages, as follows:

May 13, 1925, the upper posterior quarter was coagulated and removed by the curet under ether anesthesia.

Feb. 16, 1927, the upper anterior quarter was coagulated and removed by the curet under ether anesthesia.

Fig. 2.—Low power magnification of section of growth showing the warty nature of the epidermis and pigment deposits in the upper layers of the corium.

Aug. 15, 1927, the lower anterior quarter was coagulated and removed by the curet under ether anesthesia.

March 24, 1928, the lower posterior quarter was coagulated and removed by the curet under ether anesthesia.

Fig. 3.—Appearance of child at the completion of treatment, Dec. 13, 1929, showing scar tissue remaining after removal of growth.

Feb. 8, 1929, scattered areas of pigment still remaining throughout the entire scar area were coagulated and removed by the curet under gas anesthesia.

Ten months has now (Dec. 13, 1929) elapsed since the last operation. The scar is soft and pliable and is showing continued improvement.

490 Post Street.

Special Article

GASTRIC DISTURBANCES

A. J. BEAMS, M.D.
AND
E. M. GERAGHTY
CLEVELAND

(Concluded from page 1143)

ROUTINE 3

FOODS ALLOWED

Beverages: Buttermilk, cocoa, weak coffee, eggnog, malted milk, milk, milk and cream, postum, S. M. A., tea, Kaffee Hag.

Cream Soups: Made with sweet cream, sour cream or white sauce and strained vegetables; oyster stew, clam broth and chicken broth.

Breads: Any except very fresh breads.

Eggs: Any style except fried.

Fats: Butter, cream, oil and oleomargarine.

Cereals: Bran flakes, cornflakes, cornmeal, cream of wheat, farina, hominy, malt breakfast food, strained oatmeal, pettijohns, puffed rice, puffed wheat, ralstons, rice, shredded wheat biscuit.

Desserts: Apple snow, custard, gelatin, junket, prune whip, rice and other simple puddings, tapioca; ice cream, ices, sponge cake or simple cup cakes.

Fruits: Cooked—apples, apricots, white cherries, peaches, pears, red raspberries, strawberries; dried and stewed—apricots, figs, prunes; fresh—apricots, figs, peaches, pears, red raspberries, strawberries (grapefruit, oranges, by permission of physician); juices—cherry, loganberry, orange, pineapple and strawberry (small amount of lemon juice).

Vegetables: Cooked—asparagus, lima beans, stringbeans, wax beans, carrots, corn (puréed), egg plant, peas, Irish potatoes, sweet potatoes, spinach and squash; dried and stewed—peas; fresh—celery, lettuce, watercress.

Salads: Made with any of the allowed fruits and vegetables.

Salad Dressings: Mayonnaise dressing, cream salad dressing, whipped cream dressing.

Meats: Creamed, boiled, broiled, baked or roast chicken, lamb, veal and beef, crisp bacon.

Fish: Any fresh or salt fish not fried or pickled.

Cheese: Cottage and cream cheese.

Jams and Jellies: Simple fruits.

FOODS TO AVOID

Avoid catsup, chili sauce, horseradish, mustard, pickles, salt, highly seasoned foods and much spice.

Avoid such vegetables as dried beans, brussels sprouts, cabbage, cauliflower, cucumbers, onions, green peppers, radishes, sauerkraut and turnips.

Avoid meat soups and gravies.

Avoid corned beef, frankfurters, pork, sausages and all cold meats.

Avoid fried foods, hot breads and pastries.

Do not overeat of any one food.

Do not eat nuts.

"IF YOU LUNCH AT A RESTAURANT"

Cream cheese
Combination salad (allowed vegetables)
Rolls and butter
Baked apple
Milk

Chicken rice soup
Creamed salmon
Bread and butter
Bread pudding
Milk

Hot roast beef sandwich
Lettuce salad
Bread and butter
Orange gelatin
Milk

Cream soup
Baked potatoes
Celery
Bread and butter
Canned pears
Milk

Split pea soup
Bacon and eggs (not fried)
Pear and celery salad
Bread and butter
Milk

Lamb chop
Lettuce salad
Rolls and butter
Apple Brown Betty
Tea

Baked chicken and rice
Fruit salad
Rolls and butter
Milk

"DINNER PAIL LUNCHES"

Cream cheese sandwich
Jelly sandwich
Red raspberries
Cupcake
Milk

Lettuce sandwich
Cream cheese sandwich
Pear or any other allowed fruits in season
Sponge cake
Milk

TABLE 5.—*Suggested Menus for One Week on Routine 3*

Morning	Noon	Evening
Apple sauce Oatmeal (strained) Poached egg Toast and butter *Coffee	Broiled Hamburg patties Peas Head lettuce with oil Bread and butter Baked rice pudding Tea	Cream of pea soup Egg salad Baked potatoes Bread and butter Canned peaches Tea
*Stewed prunes Cornflakes Bacon (very crisp) Toast and butter Coffee	Broiled beef Carrots Stringbeans Bread and butter Fruit gelatin with top milk Tea	Creamed eggs on toast Carrots Bread and butter Prune whip Milk
Baked apple Cream of wheat Poached eggs Toast and butter Coffee	Lamb chops Baked potatoes Asparagus Celery *Cornstarch pudding Tea	*Cream of celery soup Crisp bacon Peas Bread and butter *Sponge cake Canned pears Tea
*Stewed apricots Malt breakfast food Bacon (very crisp) Toast and butter Coffee	Roast chicken Mashed potatoes Spinach *Graham whip Tea	Creamed chicken on toast Head lettuce with mayonnaise Baked potato *Apricot whip Cocoa
Peach (very ripe) Poached egg Wheatena Toast and butter Coffee	Roast beef Boiled potatoes Carrots Rolls and butter *Brown Betty Tea	Spinach custard *Fruit salad Rolls and butter *Tapioca pudding Milk
Pears (very ripe) Oatmeal (strained) Egg, soft cooked Toast and butter Coffee	Broiled halibut Stringbeans *Head lettuce with mayonnaise Stewed figs Bread and butter Milk	Cream of corn soup Boiled beef Stringbeans Prune custard Cookies Tea
Prunes Cornmeal Bacon (very crisp) Toast and butter Coffee	Roast lamb Boiled potatoes Celery Bread and butter Custard Tea	Chicken soup Cream cheese Fresh fruit salad Bread and butter Cup cake Tea

* Directions for preparing these foods are given elsewhere in this series of articles.

Salmon sandwich
Lettuce sandwich
Fresh peach
Crackers
Milk

Watercress sandwich
Egg sandwich
Peach or any other allowed fruits in season
Cupcake
Milk

Bacon sandwich
Egg sandwich
Baked apple
Cupcake
Milk

Lettuce sandwich
Bacon sandwich
Red raspberries or any other allowed fruits in season
Crackers
Milk

Cream cheese sandwich
Chopped celery sandwich
Baked apple
Custard
Milk

METHODS OF PREPARING FOODS LISTED FOR ROUTINE 3

CHOCOLATE MALTED MILK (1 serving)

Materials:

- 1 teaspoonful sugar
- 1 teaspoonful cocoa
- 1 tablespoonful water
- 2 teaspoonfuls malted milk
- ⅔ cup milk
- 1 egg

Method:

1. Mix sugar, cocoa and water
2. Boil two minutes
3. Mix malted milk with cold water
4. Stir until creamy and smooth
5. Beat egg slightly
6. Add malted milk mixture
7. Add cocoa syrup
8. Serve very cold

Total recipe: protein, 13 Gm.; fat, 14 Gm.; carbohydrate, 18 Gm.; calories, 242.

PLAIN MALTED MILK

Materials:

- 2 tablespoonfuls malted milk
- ¼ cup cold milk
- ½ cup hot milk

Method:

1. Mix malted milk with cold milk
2. Stir until creamy and smooth
3. Add hot milk gradually, stirring constantly
4. Serve hot.

Total recipe: protein, 11 Gm.; fat, 10 Gm.; carbohydrate, 29 Gm.; calories, 252.

OYSTER STEW (6 servings)

Materials:

- 1 pint oysters
- 2 tablespoonfuls butter
- 1 teaspoonful salt
- 1 quart scalded milk

Method:

1. Clean and drain oysters
2. Heat liquid to boiling point
3. Strain liquid through cheese cloth
4. Add oysters
5. Cook until edges of oysters curl
6. Remove oysters with a skimmer
7. Put oysters in a hot dish with butter and salt
8. Combine oyster liquid and scalded milk
9. Pour over oysters
10. Serve with crackers

Total recipe: protein, 68 Gm.; fat, 74 Gm.; carbohydrate, 68 Gm.; calories, 1,208.

One serving: protein, 11 Gm.; fat, 12 Gm.; carbohydrate, 11 Gm.; calories, 201.

POTATO SOUP (4 servings)

Materials:

- 3 cups mashed potatoes
- 3 cups milk
- 1 slice onion
- 2 tablespoonfuls butter
- 1½ teaspoonfuls salt
- ¼ teaspoonful celery salt
- Parsley

Method:

1. Scald milk with onion
2. Add milk slowly to potato
3. Melt butter
4. Add flour
5. Stir until smooth
6. Cook over water until thick
7. Add salt, celery salt and parsley
8. Strain and serve

Total recipe: protein, 39 Gm.; fat, 56 Gm.; carbohydrate, 157 Gm.; calories, 1,287.

One serving: protein, 10 Gm.; fat, 14 Gm.; carbohydrate, 39 Gm.; calories, 322.

EGG TIMBALES (4 servings)

Materials:

- 1 tablespoonful butter
- 1 tablespoonful flour
- ¾ cup milk, scalded
- 3 eggs
- Salt
- ½ cup purée of carrots

Method:

1. Melt butter, stir in flour
2. Add milk and cook until thick, stirring constantly
3. Add egg yolks, beaten
4. Add well beaten whites, salt and puréed carrots
5. Pour into buttered molds and bake in a pan of hot water until firm

Total recipe: protein, 26 Gm.; fat, 39 Gm.; carbohydrates, 26 Gm.; calories, 561.

One serving: protein, 7 Gm.; fat, 10 Gm.; carbohydrates, 7 Gm.; calories, 140.

ROLLED OATS (4 servings)

Materials:

- 1 cup rolled oats
- 2 cups boiling water
- ½ teaspoonful salt

Method:

1. Add rolled oats to boiling salted water and cook over flame five minutes, stirring all the time
2. Put in top part of double boiler and cook two hours

Total recipe: protein, 12 Gm.; fat, 5 Gm.; carbohydrates, 52 Gm.; calories, 297.

One serving: protein, 3 Gm.; fat, 1 Gm.; carbohydrates, 13 Gm.; calories, 74.

APRICOT SOUFFLÉ (3 servings)

Materials:

- 1 tablespoonful butter
- 1 tablespoonful flour
- ½ cup scalded milk
- 2 eggs
- 2 tablespoonfuls sugar
- ¼ teaspoonful salt
- ½ cup puréed apricots

Method:

1. Melt butter
2. Add flour and stir until creamy
3. Cook over flame one minute, stirring constantly
4. Add hot milk gradually and cook until mixture thickens, stirring occasionally
5. Beat egg yolks, add sugar and salt
6. Pour milk mixture slowly over egg yolks, stirring constantly
7. Add apricot pulp
8. Beat egg whites very stiff and fold into sauce
9. Turn into buttered baking dish and bake slowly for thirty-five minutes
10. Serve at once

Total recipe: protein, 22 Gm.; fat, 28 Gm.; carbohydrate, 81 Gm.; calories, 661.

One serving: protein, 7 Gm.; fat, 9 Gm.; carbohydrate, 27 Gm.; calories, 220.

BROWN BETTY (5 servings)

Materials:

- 4 tablespoonfuls butter
- 2 cups bread crumbs
- 4 large apples
- ½ cup sugar

Method:

1. Melt butter
2. Add crumbs
3. Pare, core and slice apples
4. Spread a layer of crumbs in the buttered baking dish
5. Add half the apples
6. Sprinkle with one half of the sugar and nutmeg
7. Add remaining apples and sugar
8. Add remaining crumbs
9. Bake forty minutes in a moderate oven

Total recipe: protein, 12 Gm.; fat, 56 Gm.; carbohydrate, 254 Gm.; calories, 1,568.

One serving: protein, 2 Gm.; fat, 11 Gm.; carbohydrate, 51 Gm.; calories, 313.

FRUIT GELATIN (2 servings)

Materials:

- 1 teaspoonful gelatin
- 1 tablespoonful cold water
- ¾ cup boiling water
- 1 tablespoonful sugar
- 2 tablespoonfuls lemon juice
- ½ orange, sliced
- ¼ grapefruit
- 2 tablespoonfuls red cherries

Method:
1. Soak gelatin in cold water
2. Dissolve in boiling water
3. Add sugar
4. When cool, add lemon juice, sliced orange, grapefruit and cherries
5. Pour into molds
6. Set in cold place to harden

Total recipe: protein, 4 Gm.; fat, 1 Gm.; carbohydrate, 35 Gm.; calories, 160.

One serving: protein, 2 Gm.; fat, —; carbohydrate, 18 Gm.; calories, 80.

Graham Whip (2 servings)

Materials:
- 2 teaspoonfuls gelatin
- 1 tablespoonful cold water
- 2 tablespoonfuls boiling water
- 1 tablespoonful sugar
- ¾ cup ground graham crackers
- 1 teaspoonful vanilla
- ¾ cup whipped cream

Method:
1. Soak gelatin in cold water five minutes
2. Add boiling water and stir until gelatin is dissolved
3. Add sugar and cool
4. When cool add graham cracker crumbs and vanilla
5. Fold in the whipped cream
6. Pour into molds and allow to stand in cool place until firm

Total recipe: protein, 15 Gm.; fat, 23 Gm.; carbohydrate, 72 Gm.; calories, 554.

One serving: protein, 7 Gm.; fat, 12 Gm.; carbohydrate, 36 Gm.; calories, 277.

Stewed Dried Apricots (4 servings)

Materials:
- 12 halves dried apricots
- 2 cups water

Method:
1. Wash apricots
2. Soak three hours in cold water
3. Cook slowly in the same water until soft
4. Cool
5. Serve in small dish

Total recipe: protein, 4 Gm.; fat, 1 Gm.; carbohydrate, 45 Gm.; calories, 200.

One serving: protein, 1 Gm.; fat, —; carbohydrate, 11 Gm.; calories, 50.

Stewed Prunes (4 servings)

Materials:
- 24 dried prunes, medium size
- 2 cups water
- 2 slices lemon

Method:
1. Wash prunes
2. Soak in water five hours
3. Cook slowly in same water
4. Add lemon
5. Cook two minutes longer
6. Serve very cold

Total recipe: protein, 4 Gm.; fat, —; carbohydrate, 136 Gm.; calories, 561.

One serving: protein, 1 Gm.; fat, —; carbohydrate, 34 Gm.; calories, 140.

Creamed Carrots (2 servings)

Material:
- ½ cup carrots
- ½ cup white sauce No. 2
- 2 cups boiling water
- ¼ teaspoonful salt

Method:
1. Wash and scrape carrots
2. Cut into small cubes
3. Cook in boiling salted water until tender
4. Drain
5. Add carrots to hot white sauce
6. Serve in hot vegetable dish

Total recipe: protein, 6 Gm.; fat, 19 Gm.; carbohydrate, 19 Gm.; calories, 262.

One serving: protein, 3 Gm.; fat, 9 Gm.; carbohydrate, 9 Gm.; calories, 131.

Creamed Peas (2 servings)

Material:
- ¾ cup cooked peas
- ½ cup white sauce No. 2
- ¼ teaspoonful salt

Method:
1. Add peas to white sauce
2. Season
3. Serve at once

Total recipe: protein, 10 Gm.; fat, 18 Gm.; carbohydrate, 27 Gm.; calories, 309.

One serving: protein, 5 Gm.; fat, 9 Gm.; carbohydrate, 13 Gm.; calories, 154.

Escalloped Potatoes (6 servings)

Materials:
- 6 medium sized potatoes
- 3 tablespoonfuls flour
- Salt and pepper
- 3 tablespoonfuls butter
- 2 cups milk

Method:
1. Wash and pare potatoes
2. Slice very thin
3. Place a layer of potato in baking dish
4. Sprinkle with flour, salt and pepper
5. Dot with butter
6. Add another layer of potatoes, flour and butter
7. Repeat until potatoes are all used
8. Add milk to cover
9. Cook very slowly for about two hours

Total recipe: protein, 37 Gm.; fat, 59 Gm.; carbohydrate, 209 Gm.; calories, 1,513.

One serving: protein, 6 Gm.; fat, 10 Gm.; carbohydrate, 35 Gm.; calories, 252.

Egg Salad (1 serving)

Materials:
- 1 hard cooked egg
- ½ tablespoonful French dressing
- ⅛ teaspoonful mustard
- 1 tablespoonful cream dressing
- 2 small leaves of lettuce
- Few grains of paprika

Method:
1. Cut egg into halves, lengthwise
2. Remove yolk
3. Mash yolk and add French dressing and mustard
4. Refill egg white with yolk mixture
5. Arrange on lettuce leaves on a salad plate
6. Put combination dressing on top
7. Sprinkle with paprika
8. Serve at once

Total recipe: protein, 7 Gm.; fat, 15 Gm.; carbohydrate, 2 Gm.; calories, 164.

Vegetable Salad No. 1 (1 serving)

Materials:
- ¼ cup cooked carrots cut in small cubes
- ¼ cup cooked string-beans cut in half-inch pieces
- ¼ cup of French dressing
- 1 leaf of lettuce
- 2 tablespoonfuls cream dressing

Method:
1. Marinate vegetables with French dressing for half hour
2. Arrange vegetables in four groups on lettuce leaf on salad plate
3. Place cream salad dressing in center of vegetables
4. Serve very cold

Total recipe: protein, 3 Gm.; fat, 57 Gm.; carbohydrate, 10 Gm.; calories, 560.

Dressed Watercress (1 serving)

Materials:
- ½ small bunch watercress
- 4 tablespoonfuls French dressing

Method:
1. Wash watercress
2. Remove roots, drain and chill
3. Arrange on a salad plate
4. Serve with French dressing

Total recipe: protein, —; fat, 53 Gm.; carbohydrate, 5 Gm.; calories, 499.

FRENCH DRESSING

Materials:

8 tablespoonfuls oil
1 tablespoonful lemon juice

Method:

Blend well

Total recipe: protein, —; fat, 120 Gm.; carbohydrate, —; calories, 1,081.

One tablespoonful: protein, —; fat, 13 Gm.; carbohydrate, —; calories, 120.

MAYONNAISE

Materials:

2 tablespoonfuls lemon juice
2 cups oil
1 egg
1 teaspoonful salt

Method:

1. Put lemon juice or vinegar in a bowl
2. Add 5 tablespoonfuls of the oil and beat well
3. Add the egg
4. Add remaining oil very slowly at first and continue to beat until all the oil has been added
5. Add salt

Total recipe: protein, 6 Gm.; fat, 486 Gm.; carbohydrate, 1 Gm.; calories, 4,400.

One tablespoonful: protein, —; fat, 13 Gm.; carbohydrate, —; calories, 118.

MINCED LAMB ON TOAST (2 servings)

Materials:

2 slices roast lamb
½ cup chicken broth
½ tablespoonful butter
½ tablespoonful flour
Salt, pepper, celery salt
1 slice bread

Method:

1. Chop meat fine
2. Brown butter and flour
3. Add water or chicken broth to butter and flour, stirring until smooth
4. Cook until thick, stirring constantly
5. Add meat to gravy
6. Season with salt, pepper and celery salt
7. Serve on toast

Total recipe: protein, 34 Gm.; fat, 23 Gm.; carbohydrate, 19 Gm.; calories, 414.

One serving: protein, 17 Gm.; fat, 11 Gm.; carbohydrate, 9 Gm.; calories, 207.

CHICKEN CUSTARD (1 serving)

Materials:

1 egg
½ cup milk
¼ cup chopped cooked chicken
¼ teaspoonful salt
1 teaspoonful butter

Method:

1. Beat egg slightly
2. Add milk
3. Add chopped chicken and salt
4. Pour in small baking dish which has been greased with butter
5. Set in pan of hot water and bake in moderate oven until firm

Total recipe: protein, 18 Gm.; fat, 22 Gm.; carbohydrate, 6 Gm.; calories, 292.

PRACTICAL APPLICATION OF ROUTINE 3

At 2 o'clock one morning, Peter Gruska was rushed to the hospital for an emergency operation. Four weeks later he left the hospital with carefully written instructions about his diet. The following day the dietitian dropped in to see Mrs. Gruska and to make sure there was no doubt in her mind about her husband's food. But poor Mrs. Gruska spoke no English. Furthermore, there were six children to take care of and naturally she was not too enthusiastic about preparing two sets of meals each day. The interpreting was done by Mary, a child about 12 years old, and it was on her that the responsibility of her father's diet seemed to rest. There were many foods mentioned on the diet list which were entirely unknown to Mary and her mother. Shortly after this, Mary and the dietitian went shopping for some of the unknown foods. They returned to Mrs. Gruska with a box of wheatena and a squash. The next step was to show her how to cook these strange things. Mr. Gruska asked about some pudding which he had eaten in the hospital. One afternoon, the dietitian took Mary over to the hospital—it was only a few blocks away—and gave her several kinds of puddings to taste. Little by little she learned to cook these puddings and many other things which were included in her father's diet, and at the same time were good for the whole family.

Two months after Mr. Gruska left the hospital he was back at work. And still he followed his diet. You would have laughed to see him start out; his pockets were packed with a jar of applesauce or canned fruit, a pint of milk, dry toast, eggs. This was six months ago. Today his diet is a bit more liberal, but he receives constant supervision.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE

(See New and Nonofficial Remedies, 1929, p. 360).

United States Standard Products Co., Woodworth, Wis.

Diphtheria Toxin-Antitoxin Mixture 0.1 L+ Non-Sensitizing (Sheep).—Each cubic centimeter constitutes a single dose of diphtheria toxin neutralized with the proper amount of antitoxin produced from sheep. Marketed in packages of three vials, each containing 1 cc.; in packages of one vial containing 10 cc.; in packages of one vial containing 30 cc., and in packages of thirty vials, each containing 1 cc.

TUTOCAIN (See New and Nonofficial Remedies, 1929, p. 51).

The following dosage form has been accepted:

Tablets Tutocain No. 6: Each tablet contains tutocain, 0.05 Gm.

AMPOULES OF PITOCIN (See THE JOURNAL, July 13, 1929, p. 117).

The following dosage form has been accepted:

Ampoules of Pitocin 0.5 cc.: Each ampule contains more than 0.5 cc.

MERTHIOLATE (See THE JOURNAL, Dec. 7, 1929, p. 1809).

The following dosage forms have been accepted:

Merthiolate Jelly 1:2,000: Merthiolate 0.05 per cent, eucalyptol 0.016 per cent, eugenol 0.016 per cent, in a water-soluble base.

Merthiolate Ointment 1:1,000: Merthiolate 0.1 per cent in a petrolatum base.

The Fears of Children Are Not Natural.—We have learned much that is valuable from the behaviorists about the conditioning of emotions and actions. We have found that most of the fears of children are not "natural" as was formerly thought. They are conditioned by the home environment. Though behaviorists have not worked out a plan of campaign, it is clear that desirable actions and interest in reading may also be conditioned and, consequently, we have here an important and fruitful method of child training when some one appears with Hall's enthusiasm for practical applications and with his genius for making the scientific facts clear to the ordinary mother and teacher.—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930, p. 8.

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SATURDAY, APRIL 19, 1930

INFORMATION AND MISINFORMATION CONCERNING UNDULANT FEVER

During the past five years, numerous contributions to medical literature dealing with undulant fever have focused the attention of medical men on this disease. That these publications have stimulated physicians to search for cases of undulant fever is demonstrated by the large number of cases that have been discovered. Moreover, the scientific information has been reflected in lay publications and public interest has been aroused. Unfortunately, the articles prepared for lay consumption are not always limited to facts.

In the February, 1930, issue of *Good Housekeeping* appears an article by Frederic Damrau, M.D., entitled "Undulant Fever: What It Is and How It Concerns You." Reprints of this article have been widely disseminated by persons interested in the sale of raw milk. A footnote states: "This article appearing in the leading magazine for women in the world clears up much of the misinformation that has been distributed on this subject in various other publications." Dr. Damrau's article is itself, however, a masterpiece of misinformation. In the introductory paragraphs appears the statement that contagious abortion of cattle is well under control. Those who are adequately informed regarding this situation know that contagious abortion of cattle represents at present a source of economic loss which exceeds that produced by bovine tuberculosis. Furthermore, they are compelled to agree with Ward Giltner,[1] dean of the Division of Veterinary Medicine of Michigan State College, who stated recently: "It cannot be said that bovine infectious abortion is under control or that it is being subjected to intelligent and effective attempts at control except in a few isolated herds."

Dr. Damrau's statement that undulant fever is not new is true, but it is also true that the reawakening of world-wide interest in undulant fever is recent. Not until 1918, when Alice Evans discovered that the organism of contagious abortion (the so-called *Bacillus abortus* of Bang) and the organism of Malta fever (the so-called *Micrococcus melitensis* of Bruce) are indistinguishable morphologically, biochemically, culturally and by ordinary agglutination tests, did international interest in undulant fever revive. Evans's discovery led to the development of our present knowledge of the widespread character of the disease in human beings and its causal relationship to the disease in cattle and other domestic animals. As regards the statement "Just as one twin brother may be a crook and the other a respectable citizen, the goat microbe is highly dangerous, while the cow germ under ordinary circumstances is relatively harmless to man," Meyer and his associates [2] studied the pathogenicity of the *abortus* and *melitensis* varieties of *Brucella melitensis* for guinea-pigs and found the *abortus* variety more invasive and virulent as a rule than the *melitensis* variety. Jaffé [3] found that the inflammatory changes produced by the *abortus* and *melitensis* varieties in guinea-pigs were qualitatively alike with more pronounced changes in the case of the *abortus* infections. Burnet [4] states also that he is of the impression that the *abortus* variety is more virulent than the *melitensis* variety for guinea-pigs. Burnet and de Lagoanère [5] found no difference in the pathogenicity of the two varieties in experiments on rats and mice. Carpenter,[6] King,[7] Huddleson [8] and Simpson [9] have recovered the so-called bovine strain of *Brucella abortus* from the blood of human beings ill with undulant fever and from the raw cow's milk supplied to these patients.

The statement that the majority of cases of undulant fever not due to infection with organisms contained in goat's milk are due to infection with the porcine strain of *Brucella abortus* has little justification in the light of present knowledge. There is at present no uniformly reliable method for distinguishing between the porcine and the bovine strains of *Brucella abortus*. Furthermore, many of the strains that have been designated as porcine have been recovered from cow's milk. Hardy [10] has recently stated: "A classification of isolated strains is important, but it seems evident that this will not be a

1. Giltner, Ward: The Present Status of Infectious Abortion Control from the Laboratory Standpoint, J. A. Vet. M. A. **74**: 880, 1929.

2. Meyer, K. F.; Fleischner, E. C., and Shaw, E. B.: The Pathogenicity of Bacterium Melitensis for Guinea-Pigs, Proc. Soc. Exper. Biol. & Med. **16**: 152, 1919.

3. Jaffé, R. H.: Ueber die experimentelle Infektion des Meerschweinchens mit dem Bac. Melitensis (Bruce) und dem Bac. Abortus (Bang), Arch. f. path. Anat. u. Physiol. **238**: 119, 1922.

4. Burnet, E.: Sur les rapports du B. abortus (Bang) et du Micrococcus melitensis, Compt. rend. Acad. d. sc. **175**: 709, 1922; Rapports du Micrococcus melitensis et du B. abortus de Bang, Arch. Inst. Pasteur de l'Afrique du Nord **3**: 48, 1923.

5. Burnet, E., and de Lagoanère, J. L.: Pouvoir pathogène du M. melitensis et du B. abortus pour le rat et la souris, Bull. Soc. path. exot. **17**: 465, 1924.

6. Carpenter, C. M., and King, M. J.: Brucella Abortus in Milk and Its Relation to Undulant Fever, Am. Pub. Health A., Symposium on Undulant Fever, 1929, p. 1.

7. King, M. J.: Brucella Abortus Infection of Milk, New England J. Med. **201**: 918 (Nov. 7) 1929.

8. Huddleson, I. F.: Is Bacterium Abortus Pathogenic for Human Beings? J. A. M. A. **86**: 943 (March 27) 1926; Undulant Fever in Man and Its Relation to Bovine Infectious Abortion (Bang's Abortion Disease), J. Michigan State M. S. **26**: 664 (Nov.) 1927. Orr, P. F., and Huddleson, I. F.: A Further Epidemiological Study of Undulant Fever in Michigan, Am. Pub. Health A., Symposium on Undulant Fever, 1929, p. 34.

9. Simpson, W. M., and Fraizer, Eunice: Undulant Fever: Report of Sixty-Three Cases Occurring in and About Dayton, Ohio, J. A. M. A. **93**: 1958 (Dec. 21) 1929.

10. Hardy, A. V.: Undulant Fever: Etiology, Epidemiology and Laboratory Diagnosis, J. A. M. A. **93**: 891 (Sept. 21) 1929.

reliable index of the importance of the different varieties as a cause of human disease." It appears to be well established that the majority of human infections with *Brucella* organisms have resulted from the ingestion of the organisms. Hardy [11] has demonstrated experimentally in guinea-pigs that the skin may be a portal of entry. It is likely that some cases of undulant fever have originated in this manner among packing house workers, veterinarians and farmers who have been in direct contact with infected animal tissues. It must be borne in mind, however, that persons who are subjected to such an occupational hazard are usually also consumers of raw milk. This mode of infection does not play an important part among urban populations where there has been no direct contact with infected animals.

Dr. Damrau attempts to minimize the importance of undulant fever as a public health problem. During 1926, forty-six cases of undulant fever were reported in this country; during 1927, 217 cases; during 1928, 649 cases; during 1929, 1,301 cases. These figures are relative, since they represent only the cases recorded by state health departments and do not include the indeterminable number of cases that have been recognized as the result of confirmatory laboratory studies carried out in hospital and private laboratories, since not all state health departments list undulant fever as a reportable disease. Furthermore, there is abundant evidence to indicate that the majority of cases of undulant fever are passing unrecognized. Cases of undulant fever were recorded by health departments of every state of the Union during 1929.

The statement is made that "Five human volunteers bared their arms to the hypodermic syringe containing 800,000,000 to 900,000,000 of the cow microbes of Bang. Here, certainly, was the crucial test to discover whether the germ that has been accused of causing undulant fever is friend or foe. Not one of the volunteers suffered any ill effect from the injection!" This statement is based on a report by Nicolle, Burnet and Conseil,[12] published in 1923. Evans [13] states that the conclusions drawn by these observers are contrary to the facts that have been revealed since their experiments were originally carried out. Dr. Damrau fails to direct attention to a more recent report by the same investigators.[14] They felt impelled to repeat this experiment because of the many reports of undulant fever due to infection with the bovine strain of the organism. In their recent reinvestigation they used cultures that were more recently isolated than those used in the older experiment. The conclusions drawn from the more recent study are much less categorical than those stated in 1923. Evans [15] states: "It is well recognized that pathogenic bacteria lose their virulence when grown on artificial media and this loss in virulence has been commonly noted in the organism of contagious abortion."

In regard to Dr. Damrau's statement that of the many millions of people who drink raw milk only hundreds get the disease, many individuals are naturally immune to undulant fever. This natural immunity is observed in all infectious diseases. Furthermore, many individuals are undoubtedly immune as the result of a previous infection with undulant fever, frequently mild, and often mistaken for influenza, typhoid or tuberculosis. The intimation that undulant fever is always a mild disease is without justification. The statement that certified milk is guaranteed to have so low a bacterial count that pasteurization would be superflous is an evasion, since the mere counting of bacteria does not determine the identity of the bacteria that are present.

Children are by no means entirely immune to the disease. Ten per cent of the ninety cases encountered by Simpson [16] occurred in children under ten years of age. Kohlbry [17] has recently reported the disease in a one year old infant.

Pediatricians will not all agree with Dr. Damrau's statements that "Babies show a marked preference for unpasteurized milk. Pasteurization changes the taste. The curd becomes less digestible, the vitamins are reduced, and the form of the albumin is altered. It is well known that rickets is more common in babies fed on pasteurized than on certified milk." Any difference in taste between raw and properly pasteurized milk is largely a product of the imagination. Many pediatricians find that boiled milk is much more digestible for infants than raw milk. Furthermore, it is generally recognized that the vitamin content of raw milk is an insufficient protection against avitaminous disorders. The vitamin content of milk shows marked seasonal variations, largely dependent on the character of the cow's food. Therefore, the indications for the addition of vitamin-containing substances to either raw or pasteurized milk are essentially the same.

Theoretically, the most perfect milk would be that derived from disease-free cattle. Since contagious abortion is so widespread among cattle, it will require many years of diligent effort to control the infection at its source. The efforts that have been made in certain localities to rid herds of infectious abortion and tuberculosis are highly commendable. Until contagious abortion can be eliminated from milk-producing herds there appears to be but one logical method for preventing the transmission of milk-borne infection to human beings and that is by pasteurization. A quotation from Mil-

11. Hardy, A. V.; Hudson, M. G., and Jordan, C. F.: The Skin as a Portal of Entry in Br. Melitensis Infections, J. Infect. Dis. **45**: 271 (Oct.) 1929.

12. Nicolle, C.; Burnet, E., and Conseil, E.: Le microbe de l'avortement épizootique se distingue de la fièvre Méditerranéene par l'absence de pouvoir pathogène pour l'homme, Compt. rend. Acad. d. sc. **176**: 1034, 1923.

13. Evans, Alice: Studies on Brucella (Alkaligenes) Melitensis, Bull. 143, Hyg. Lab., U. S. P. H. S., p. 41.

14. Burnet, E., and Conseil, E.: Arch. Inst. Pasteur de Tunis **18**: 21, 1929.

15. Evans, Alice: Studies on Brucella (Alkaligenes) Melitensis, Bull. 143, Hyg. Lab., U. S. P. H. S., p. 2.

16. Simpson, W. M.: Undulant Fever (Brucelliasis): A Clinicopathologic Study of Ninety Cases Occurring in and About Dayton, Ohio, Ann. Int. Med., to be published.

17. Kohlbry, C. O.: Undulant Fever in Infant, Minnesota Med. **12**: 414 (July) 1929.

ton J. Rosenau [18] is particularly pertinent in this regard: "Theoretically, a pure milk is better than a purified milk. However, no one should drink raw milk that cannot be guaranteed by the health officer as safe and free from danger. Rash, indeed, would be the health officer who would give any raw milk a safe bill of health, for raw milk is likely to be infected by carriers, missed cases, or other unseen means. Furthermore, infection in milk does not disclose its presence by our available tests. Even certified milk or milk of equally high character is not safe without pasteurization. Less than 1 per cent of all the milk found upon the market is certified. Therefore, raw milk of this honor class is not a public health problem of any magnitude, although it has been responsible for outbreaks of diphtheria, scarlet fever, and other diseases. There is no authentic record of any milk-borne epidemic caused by properly pasteurized milk."

Milk is the nearest approach to a perfect food that we possess. It would be most unfortunate if the misinformation in lay literature should result in a decrease in the use of milk. There are many milk-borne diseases other than undulant fever that are avoided by pasteurization. The establishment of evidence of the etiologic unity of contagious abortion of cattle and other domestic animals and undulant fever in human beings is but one addition to many valid reasons for this safeguard. Most dairymen are convinced of the wisdom of pasteurization from the commercial point of view alone. Those who are opposed to the practice would do well to heed the advice offered by Alice C. Evans at the time of the World's Dairy Congress in 1923: "If there were no other reason for milk pasteurization, it would appear to be folly to drink raw milk containing the *abortus* organism. With this in view, leaders in the dairy industry should anticipate public health authorities in urging with renewed emphasis the general use of heated milk in country districts."

PROPOSED RESURRECTION OF SHEPPARD-TOWNERISM

The Jones-Cooper Maternity and Infancy Bill, S. 255,[19] was recommended to the Senate for enactment without amendment, by the Committee on Commerce, April 9. This bill is in substance a bill to revive and perpetuate the Sheppard-Towner Maternity and Infancy Act. It proposes to provide federal subsidies, for all time, for states willing to subject their activities in the field of maternal and infant hygiene to the supervision and control of the Children's Bureau. There is no reason why the Sheppard-Towner Act should be resurrected and perpetuated.

The Sheppard-Towner Maternity and Infancy Act was established because its proponents insisted that maternal and infant mortality rates in the United States were excessively high. The proponents of such legislation cannot therefore now complain if mortality rates are used as a measure of the efficiency of operations under the act. The act was intended to reduce such rates, and, if it failed to do so, it did not accomplish its purpose and there is no reason for reviving it. Moreover, the Sheppard-Towner Act was represented by its advocates as a temporary measure to stimulate each state to provide adequately for the welfare and hygiene of the mothers and infants within its own territory. Then, it was understood, the federal government might withdraw its supervision and financial support from such activities. If the act stimulated the states in this manner it accomplished its purpose and there is no reason for resurrecting it. If it did not, the act was a failure, and there is even less reason for doing so.

Immediately after the expiration of the act, fifteen states and the Territory of Hawaii made appropriations from their own treasuries to replace the federal subsidy. Each of these states is therefore presumably now maintaining its organization at its own expense at the standard of efficiency established under the Sheppard-Towner Act. Other states, on the expiration of the Sheppard-Towner Act, increased their appropriations substantially, although not to an extent sufficient to replace entirely the federal subsidy that had been withdrawn. The Sheppard-Towner Act, according to the views of its advocates, would seem thus to have accomplished its purpose for these states and there is no occasion for its resurrection so far as they are concerned. Why the states that have failed to make increased appropriations have not done so is a matter for investigation and for special action in accordance with the circumstances disclosed such an investigation, and certainly is not a sufficient ground for the resurrection of the Sheppard-Towner Act for the country at large.

The action of the states mentioned has not, however, the significance that superficially might be attributed to it. The failure of the states to make such increased appropriations during the life of the act is more significant than the fact that they made them when the act expired. These states, instead of being stimulated by federal money and control, under the Sheppard-Towner Act, to enlarge their activities, learned to depend on the federal government for support. If the act had been continued in force there would have been no such increases in state appropriations as occurred when it expired. The states would have continued to rely on the federal government for support of maternal and infant hygiene and would have appropriated the money for other purposes. When thrown on their own resources, they were able readily to appropriate the sums required for the benefit of mothers and infants. Thus the Sheppard-Towner Act failed and left no reason for its resurrection.

18. Rosenau, M. J.: The Bacterial Aspects of Pasteurization, chapter XXXII, The Newer Knowledge of Bacteriology and Immunology, U. of Chicago Press, 1928, p. 417.

19. H. R. 1195 is identical with S. 255.

Certainly the functioning of the Sheppard-Towner Act failed to effect any discoverable reduction in maternal and infant mortality rates. If figures were available to show that the act reduced the rates, they would appear in the report just submitted by the Senate Committee on Commerce in support of its recommendation for the enactment of the Jones-Cooper bill. The only mortality statistics submitted by the committee, however, are infant and mortality rates for 1924 and for prior years, which have been shown on previous occasions to be utterly irrelevant so far as the Sheppard-Towner Act is concerned. The committee has submitted no statistics whatever relating to the last four and one-half years of the operations under the Sheppard-Towner Act, the very period when maternal and infant mortality rates should show a material increase in the rate of decline, if the act had exerted any influence in that direction. In view of the ready accessibility of infant and mortality rates for the period named and their supreme importance to the cause of the proponents of this measure, their absence from the committee's report may be taken as evidence that such statistics as are available would not have supported the committee's recommendation.

The child health conferences, established under the stimulus of the Sheppard-Towner Act, to which the proponents of the act point with pride, were established to reduce infant and maternal mortality. Evidence has not yet been produced to show that any such conference has reduced infant and maternal mortality in the area which it serves. Neither have they had any effect on maternal and infant mortality rates generally. Even if it is admitted that such conferences have helped some persons, the good accomplished is infinitestimal compared with seven and one-half years of federal control and the expenditure of more than six million dollars of federal money. What are the reasons for the failure of such conferences to effect reductions in the maternal and infant mortality rates? Until this question can be answered it seems hardly advisable to enact legislation that will tend to perpetuate such conferences under the same auspices and methods that have failed to accomplish their purposes.

The Jones-Cooper bill is open to every objection ever raised against the Sheppard-Towner Act. It seeks to subject intrastate health activities of the several states to federal supervision and control. It places those health activities, so far as they relate to mothers and children, and indeed even the professional personnel of the several state health departments, under the supervision and control of a lay bureau chief. It practically ignores the proper health agency of the federal government, the United States Public Health Service. It penalizes the richer and more prosperous states by taking money collected from their people through federal taxation and giving it to the poorer and less prosperous states. It pauperizes the poorer and less prosperous states by giving them federal doles, without inquiring whether they need such charity. The act is as devoid of definitions of the "mothers" and "infants" who are to be benefited, and of the limits of the health and welfare activities to be undertaken under it, as was the Sheppard-Towner Act itself. It tends to break down the fabric of our government by sanctioning the purchase, through federal subsidies, of the rights of the states to control intrastate activities in the field of hygiene.

The principles of the Jones-Cooper bill are as obnoxious as were the principles of the Sheppard-Towner Act to the resolution passed by the House of Delegates of the American Medical Association at St. Louis in May, 1922. In view of that fact and of the objections to the bill that have been pointed out, letters and telegrams opposing the enactment of the bill should be promptly forwarded to Senators and Representatives in Washington.

THE BRINKLEY AND BAKER QUACKERIES

Those of our readers who read the editorial in THE JOURNAL last week regarding J. R. Brinkley, the Milford, Kansas, "gland grafter," may be interested in Brinkley's reaction to that article. The Kansas City *Star* gave its readers many or most of the facts that have been presented to the profession and the public by THE JOURNAL, and Mr. A. B. Macdonald of the *Star* staff went to Milford to interview Brinkley. His report of that interview appeared in the Kansas City *Star*, Sunday, April 13. Mr. Macdonald reported that he first noticed Brinkley's external evidences of prosperity. He writes:

> "I began, mentally, to weigh his [Brinkley's] diamonds; to see which was the biggest, the one in his necktie, the one set in a ring of platinum on a finger of his right hand or the one on his left hand. They glittered as he moved, and my decision was that the one in his tie, as large as a hazel nut, had it over the other two."

Mr. Macdonald says that Brinkley admitted that he was using about sixty young goats a month—one goat for each transplantation, each transplantation bringing Brinkley a minimum of $750 and sometimes as much as $1,500. Brinkley further is said to have claimed that he expected to be bringing in a thousand goats a month before long! Mr. Macdonald continues:

> "No wonder he could erect the buildings that were going up on every hand. The sound of hammers and saws were loud in the little village, and trucks loaded with lumber, bricks and other building material crowded the two streets."

Further, Brinkley is said to have claimed that he had an investment of half a million dollars, all of which he has made in the past thirteen years; that when he came to Milford, it was "only a wide place in the road" without even a grocery store; that today he gets three thousand letters daily; that Milford has a postoffice of the second class and has just moved into a new building; that he is just finishing a new sanatorium at a cost

of $100,000; that he is building an apartment house for his employees and seven bungalows for his physicians and their families.

Brinkley, further, is said to have told Mr. Macdonald that in June he was starting to build the "Brinkley Clinic" that would cover a whole block, cost a million dollars, have shops, a gymnasium, a bathing pool, beauty parlors, rooms for the clinic and a theater "where we will give the best theatrical shows and talking pictures."

Mr. Macdonald writes that Brinkley denied that he got a dollar for every broadcast prescription that the druggists filled. He claimed that all the dollars that came in from this source went into the "Radio Broadcasting Fund"! Brinkley also denied in his interview that he owned the KFKB broadcasting station. He is said to have declared that the station was owned by the KFKB Broadcasting Association, whose principal stockholders are the owner and editor of a newspaper, the owner of a telephone plant, the president of a national bank and the mayor of a Kansas town. Brinkley is stated to have said that he owned only one share in the broadcasting station.

When Mr. Macdonald asked Brinkley what would happen if the state board of medical examiners should cancel his license, the quack is said to have replied that it would not make any difference to his business, as he "now has five licensed physicians and surgeons" who would do the gland grafting! The interview closes with Mr. Macdonald's reference to the $7,000 Lincoln car that had been made especially to the order of Brinkley, one of four cars that Brinkley is said to own.

Finally, Brinkley was credited with claiming that the material is on the ground for the "Brinkley Methodist Memorial Church" and parsonage that will cost $50,000 and will have "chimes and a fine pipe organ." Brinkley showed the *Star* man the tablet that is to be put on the front of the church; it read:

"Erected to God and His son, Jesus, in appreciation of many blessings conferred upon me: J. R. Brinkley."

Norman Baker's cancer cure quackery at Muscatine, Iowa, has been dealt with by the Des Moines *Register*. Not only did this paper reprint the statement of THE JOURNAL relative to Baker and KTNT but also it made an investigation of its own which established the utter falsehood of the claims made by him in his radio talks. The medical profession, of course, needed no evidence, but a credulous public must be convinced by personal study. The investigation made by the *Register* revealed many deaths from cancer among the Baker clientele; it revealed the menace of Bakerism to be his vicious influence against modern scientific diagnosis and treatment and modern public health work; it brought to light a Baker who trims his claims to the winds that blow; finally, it provides a list of associates of Baker, including one J. L. Statler and one Charles H. Gearing, who have prostituted the words physician and healer. To all of this what does Baker answer? Merely that he is being persecuted by the "Medical Trust"; that he is benefiting 25 per cent of cancers, and that the Des Moines *Register* is "cowardly, contemptible and dirty." Does this sad old world after all afford any spectacle so terribly pusillanimous or so completely ignominious as an exposed cancer quack?

The state licensing boards, the state prosecuting officials and the other constituted authorities of Kansas and of Iowa owe it to the people of those states to rid their communities as soon as possible of these blatant quacks. The Federal Radio Commission must be depended on by people in other states to spare them the possibility of hearing the obscene mouthings and pernicious promotions that are broadcast by the stations that these quacks dominate. If these authoritative bodies do not function for the good of the people, our government must find some system that will.

Current Comment

THE INDISPENSABLE SUPRARENAL CORTEX

There is an abundance of evidence to show that the suprarenal glands are essential to life. Bilateral extirpation of these organs in animals results in death within a few days. Degenerative changes in the glands of man lead to the same end, though the process is slower because a complete loss of function is not so rapidly established. The suprarenals are complex in structure and readily differentiated into two quite distinct parts, the medulla and the cortex. The medullary cells are the seat of the elaboration of epinephrine; but despite the remarkable physiologic potency of this hormone it is no longer regarded as indispensable to the bodily functions. As has often been pointed out in THE JOURNAL, epinephrine at best serves as an emergency factor, particularly under conditions of emotional stress when the action of the nervous mechanisms needs to be augmented. Evidence is rapidly accumulating to indicate the undoubted indispensability of the suprarenal cortex. It seems to be established that death follows removal of the latter rather than interference with or loss of the medulla. The best corroboration of this thesis may be expected from replacement therapy. Researches by Swingle and Pfiffner [1] at Princeton University point to their ability to maintain suprarenalectomized animals alive by suitable administration of cortical extracts. The progress of these investigators over their predecessors apparently lies in a more successful separation and concentration of the effective portions. The average span of life of twenty-five bilaterally suprarenalectomized cats was seven days. Animals similarly operated on have already survived eighty days when the Swingle-Pfiffner extract was administered daily by the subcutaneous route. This success attended the separation of an aqueous preparation of the original lipid fraction. Further progress seems assured.

1. Swingle, W. W., and Pfiffner, J. J.: An Aqueous Extract of the Suprarenal Cortex Which Maintains the Life of Bilaterally Adrenalectomized Cats, Science 71: 321 (March 21) 1930.

METHOD OF CONFERRING LASTING IMMUNITY TO MEASLES

Success in preventing measles has attended the use of convalescent serum, but the immunity conferred is temporary. After a few weeks the patient is again susceptible. This objection can perhaps be overcome by the injection into susceptible children of whole blood from adults. In 1920, Degkwitz reported favorable results with the use of adult blood in more than a thousand cases; either the measles was prevented or the severity of the attack was lessened. Well known pediatricians working with Park in New York recently confirmed Degkwitz's results. In a large institution for children, Hess used both convalescent serum and adult whole blood, giving one group of children injections of adult blood and another group injections with serum. Fewer cases of measles occurred among the children receiving serum, while those that had been injected with adult blood had mild attacks of measles. In the present campaign to control measles, the New York City Department of Health strongly advocates the use of whole adult blood, in order that children may be made permanently immune.[1] The method is simple. The most suitable donor is one of the parents. About 30 cc. of blood is drawn from a vein at the elbow into a sterile syringe. Half of the blood is injected intramuscularly into the child's right buttock and the other half into the left. There are no ill effects, and it is not necessary to type the blood of the parent or the child. As the majority of parents in New York had measles in childhood, it does not even seem necessary to ask whether the parent had measles or not. However, should one parent think he did not, the other should be used as the donor. Although advisable in children over 5 years of age to inject double the amount of blood, it should be remembered that the object is not primarily to prevent measles altogether but to insure a mild attack.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Tuesday, when the health message is delivered at 10:30 and Friday at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of April 21-26 is as follows:

April 21. Taking Care of the Child's Skin.
April 22. Taking Care of the Child's Skin (concluded).
April 24. Hygiene of the Heart.
April 25. Tuberculosis.
April 26. Stuttering or Stammering.

Five minute health talks may be heard over the Columbia Broadcasting System daily from 12 noon to 12:05 p. m.

The program for the week is as follows:

April 21. Utilizing Your Leisure for Health.
April 22. On Medical Jingoism.
April 23. Babies That Do Not Behave.
April 24. How Long Will You Live?
April 25. Skin Disease and Quackery.
April 26. Child, Clothe Thyself.

1. The Control of Measles, Weekly Bulletin City of New York Department of Health, Jan. 25, 1930.

THE DETROIT SESSION

Scientific Exhibit: Special Exhibit on Fractures Under Direction of the Cooperative Committee on Fractures

In view of the interest shown in the exhibit of the Cooperative Committee on Fractures, appointed by the Section on Surgery, General and Abdominal, and the Section on Orthopedic Surgery, the Committee on Scientific Exhibit requested the Fracture Committee to continue the exhibit for the Detroit Session. The Cooperative Committee on Fractures kindly acceded to this request. The personnel of the committee is the same as heretofore: Drs. Nathaniel Allison, Chicago; William Darrach, New York, and Kellogg Speed, Chicago. This committee announces, as members of its Advisory Committee: Drs. W. S. Baer, Wallace Cole, F. J. Cotton, R. B. Dillehunt, E. L. Eliason, George W. Hawley, M. S. Henderson, James M. Hitzrot, W. L. Keller, U. S. Army, Frank R. Ober, D. B. Phemister, Emmet Rixford, Charles L. Scudder and William O'Neill Sherman.

The plans of the committee for the Detroit Session comprise:

1. Fractures of the Hip.
2. Fractures of the Shoulder.
3. Fractures of the Scapula.
4. Plaster of Paris.
5. Emergency Treatment of Fractures of the Lower Extremity.

Demonstrations will be given in separate booths with human models; demonstrators will be on duty from 9 a. m. to noon and from 2 to 5 p. m. Demonstrations will run concurrently and criticisms and questions will be answered at the booths.

The committee has arranged for the services of about seventy-five physicians who will aid in the continuous demonstrations. The names will appear in the Detroit number of THE JOURNAL.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Sixth Annual Meeting, held in Chicago, Feb. 17, 18 and 19, 1930

(Continued from page 1151)

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 18—MORNING

MEDICAL TEACHING PLANTS

Medical School Plants

DR. C. R. BARDEEN, Madison, Wis.: A medical school plant comprises its laboratories and clinics. The laboratories and clinics under the immediate control of the medical school do not, however, represent all of the physical facilities of which the medical school makes use in medical education and medical research. Premedical requirements extend the medical course into college laboratories and class rooms. Clinical requirements direct the students to hospitals, beyond the portals of the medical school plant. Scientific study of medical problems is closely correlated with the whole field of the physical, biologic and social sciences, with engineering, agriculture, law, education and public health. The clinical care furnished patients in its hospitals brings the school into contact with the homes, shops, factories and farms, the schools, playgrounds and theaters, with the public officials, the lawyers, the clergymen, the physicians, the dentists, the nurses and the social workers of the community which it serves. From the standpoint of the abstract aspects of medical science, the ideal site for the medical school is the campus of a university on which all of the chief realms of knowledge are cultivated in the pursuit of learning and where knowledge from many sources is most readily brought to focus on a special problem. From the standpoint of the concrete applications of scientific knowledge to the medical needs of patients, the ideal location of a medical school is a site where these needs naturally converge. A medical school should have

a university circumference and a clinical center. Few are ideally located in both respects.

[Dr. Bardeen discussed fully the various types of medical schools now existing and the costs of building and maintenance.]

Plans of the New York Hospital-Cornell Medical College Association

DR. G. CANBY ROBINSON, New York: In regard to the educational uses of the plant, it may be said that one of the fundamental conceptions behind the formation of the association is the idea of developing a school of medicine with true university ideals which shall offer educational opportunities to a relatively small group of undergraduate students, numbering between two and three hundred, but which shall also afford facilities for advanced students in relatively large numbers, both in the laboratories and in the clinical departments. The provision of accommodations for a resident staff of approximately 125 is evidence of such a policy. Throughout the planning, facilities for advanced students in the clinics and laboratories have been provided. At the present time no formal graduate school is contemplated, but it is a definite policy that the great opportunities offered by the plant and the resources of the association should extend far beyond the scope of undergraduate medical instruction and should provide facilities for the advancement of medicine in practice and in science by whatever means the future may indicate as useful and in harmony with the purposes of the association.

Special Facilities Required for Teaching in Hospitals Affiliated with Medical Schools

DR. PAUL H. FESLER, Minneapolis: We have finished a building at the University of Minnesota where certain features have been incorporated after a study of the newer developments in the hospitals in medical schools over the country. This particular section is the children's hospital, endowed by a gift of $2,000,000 which will provide its maintenance. The section contains the outpatient department on the lower three floors and the hospital on the upper two floors. It is used for the students' health service, the lower two floors being for outpatients, and the upper two floors for the hospital. The building cost $890,000, or 41 cents per cubic foot, and our per capita cost is about $4 a day. It is important in teaching hospitals that we bring down the cost of hospitalization. We planned the outpatient department with a view to using all departments for more than one service. In building the amphitheater, we were anxious to get the patient as near the students as possible.

Fraudulent Credentials

DR. CHARLES B. PINKHAM, Sacramento, Calif.: Medical teaching institutions, as well as state medical examining boards, should be equally interested in fraudulent credentials. The general public does not concern itself with the credentials of an individual practicing any system of the healing art, assuming that professional schools will turn out a finished product. It also assumes that the medical examining board of each state will license only those who are thoroughly competent to practice. The public at large is unaware of (1) the insurance guaranteed by careful validation of credentials, and (2) the harm that can be done by an impostor who with fraudulent credentials acquires a state license authorizing him to treat the sick and afflicted.

[Dr. Pinkham cited many instances of fraud and described the means of detection and punishment.]

DISCUSSION ON PAPERS OF DRS. BARDEEN, ROBINSON, FESLER AND PINKHAM

DR. WALLER S. LEATHERS, Nashville, Tenn.: Two things are shown in this gratifying development. One is that there has been an effort all the time to develop university standards and ideals for the purpose of providing better teaching facilities and adequate facilities for research. In addition to this, there is proper correlation between preclinical and clinical teaching. Another important thing is the spirit of research in these large expenditures. I sometimes feel that perhaps we are giving rather too much thought to the physical side of medical education—the architectural outlay and the expenditure which is necessary to develop medical education on a modern basis. I want to stress the point that we should appreciate the great responsibility which confronts leaders of medical education in this country at the present time relative to the quality of student and the type of physician we turn out from these institutions. That, of course, involves developing in medical education the humanistic rather than the mechanistic attitude of the medical student. I fear at times that we may be losing sight of the human side, the personal contact, the human touch of the medical student, and the influence of the teacher in his association with medical students in our effort to develop the proper kind of medical education in this country.

DR. ELIAS P. LYON, Minneapolis: It should be read into our record that we differentiate between the expenditures for undergraduate medical education and the expenditures for other purposes which are somewhat different, although allied with undergraduate medical education. In all these great budgets there are large sums for the care of patients. Those patients would have to be taken care of whether there were medical undergraduate schools or not. It is extremely fallacious when one divides the total expenditures of a hospital and teaching institution by the number of students and says that that is the cost per student. Moreover, research, while excellent in a teaching institution, is something apart from it, and I have no doubt that if we were to attempt on any reasonable basis to calculate the sums spent on medical research apart from the education of undergraduates, we would find that a large proportion of these budgets go toward that purpose. Then we have everywhere graduate students, and their cost could be differentiated from the education of undergraduates as a budget arrangement, if desired. In some of our schools we teach a good many other students, such as dental students. My whole point is that undergraduate education is not so much more expensive than other forms of education, and that probably we are not helping ourselves, to put it bluntly, by giving the impression that it costs enormous sums to make a physician.

DR. I. D. METZGER, Pittsburgh: All who are interested in the administration of licensure can see the dangers that have constantly brought before us evidences of fraudulent credentials. Dr. Pinkham's paper calls the attention of deans and registrars of medical schools to the fact that a great deal of care needs to be exercised in the certificates which they issue to graduates from the schools. It brings out the fact also, I think, that it is wise for each board to have its own particular blank on which certifications are made instead of accepting diplomas or photographic copies of diplomas. It is important, especially where there are foreign graduates, to have absolute legal credentials certifying to their medical education. In the entire matter of credentials, we must be exceedingly careful.

DR. STANLEY H. OSBORN, Hartford, Conn.: Dr. Pinkham's paper brought out one thing that has not been mentioned, and that is the responsibility of the board members who are appointed by the governor to the different examining boards.

DR. T. J. CROWE, Dallas, Texas: Every medical college should not only attach the photograph of the graduate but file with the Council on Medical Education and Hospitals a duplicate of that photograph, and the biographic department of the American Medical Association should be a clearing house for credentials of registry. The Texas board sends all of its applications for reciprocity, or a list of them, to the biographic department for such information as it may possess on the persons listed. Occasionally we keep an application for a year or two years until we can get reliable information. Dr. Pinkham has the best information bureau in medicine in the United States today. The colleges should cooperate in this matter of identifying credentials.

(To be continued) 1325

Personality Begins in the Cradle.—Shaping personality begins in the cradle and continues through the preschool period. By the time the primary room is reached the foundation of personality has been laid and, like a building, the possibilities of the superstructure are settled by the underlying support.—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Report of Medical Examiners.—The state board of medical examiners reports that 590 certificates to practice were issued last year; 234 licentiates of the board died during 1929; reciprocity certificates were granted to 241, and forty-nine physicians with California licenses sought registration elsewhere. Eight licenses were revoked. The growing evil of using fraudulent credentials was stressed in the report. The courts sentenced last year one person whose credentials were fraudulent to San Quentin prison.

Society News.—The Northern California Medical Golf Association will play its second annual match with the Lawyers and Judges' Golf Association at the San Francisco Golf and Country Club, May 23.——The San Francisco County Medical Society held a symposium on postoperative pulmonary atelectasis, April 8, the speakers being Drs. Selling Brill, William B. Faulkner, Jr., Maurice L. Lubin, Albert Lincoln Brown and Harold Brunn.——Dr. W. McKim Marriott, dean and professor of pediatrics, Washington University School of Medicine, St. Louis, will give a course of lectures before the San Diego Academy of Medicine, May 5-6. The subjects to be discussed are "Effect of Diet on Bones and Teeth" and "Application of Specific Measures in the Prophylaxis and Treatment of Infectious Diseases."——A dry clinic on goiter was presented before the Los Angeles Surgical Society, April 11, by Dr. Leroy B. Sherry, Pasadena.——The San Diego County Medical Society was addressed, April 8, by Dr. Samuel D. Ingham, Los Angeles, on "How to Make a Neurologic Examination and How to Interpret Your Findings."

State Medical Meeting at Del Monte.—The fifty-ninth annual session of the California Medical Association will be held at Del Monte, April 28-May 1, with headquarters at the Hotel Del Monte, and under the presidency of Dr. Morton R. Gibbons, San Francisco. The guest speakers will be Drs. W. McKim Marriott, dean and professor of pediatrics, Washington University School of Medicine, St. Louis, on "Clinical Application of Recent Studies Concerning Chemical Equilibrium in the Body"; Arthur U. Desjardins, assistant professor of radiology, Mayo Clinic, Rochester, Minn., "Value of Radiotherapy in Mediastinal Tumors"; George M. Curtis, associate professor of surgery, University of Chicago, "Cretinism," and Fred D. Weidman, professor of dermatology, University of Pennsylvania School of Medicine, Philadelphia, "Yellowing Dermatoses with Special Reference to Xanthomas." There will be a symposium on coccidioidal granuloma. A scientific exhibit of gross and microscopic specimens, illustrating the mycoses, will be demonstrated with roentgenograms and charts and other gross specimens illustrating various interesting phases of pathologic change. The special golf tournament will be Monday, April 28, and the championship tournament, Tuesday. Luncheons and teas are planned for the women guests. The president's dinner dance will be held Tuesday evening.

COLORADO

Society News.—Dr. William A. Kickland, Fort Collins, president elect of the state medical society, addressed the Northeast Colorado Medical Society at Sterling, March 13, on "Periodic Health Examinations."——The Pueblo County Public Health Association was addressed, March 3, by Dr. Bertram B. Jaffa, Denver, on "Control of Epidemic Diseases in the United States"; Dr. John W. Amesse, Denver, "Conquest of Endemic Diseases in the Philippines and Methods Used to Prevent Their Introduction Into the United States," and Col. John A. Clark, Medical Corps, U. S. Army, "Subjugation of Tropical Disease in the Far East by the Army Medical Corps."——The El Paso County Medical Society was addressed at Colorado Springs, March 17, by Dr. Rutherford B. H. Gradwohl, St. Louis, on "The Schilling Differential Count, with Special Reference to Tuberculosis."

ILLINOIS

Society News.—Dr. Cleveland J. White, Chicago, spoke before the McLean County Medical Society, Bloomington, April 8, on "Diseases of the Mucous Membranes of the Mouth, as Encountered in Dermatologic Practice."——Dr. Clement L. Martin, Chicago, addressed the physicians of Iroquois County, March 28, at Watseka on "Treatment of Hemorrhoids by Nonsurgical and Operative Methods."——The staff of St. Anthony's Hospital, Rock Island, will hold its third annual clinic, April 23; Drs. Ralph B. Bettman and Max Biesenthal, Chicago, and Dr. Roswell T. Pettit of Ottawa will present a symposium on the diagnosis, medical and surgical treatment of tuberculosis; Dr. Frederick H. Falls, Chicago, will speak on "Eclamptogenic Toxemia," and Dr. George W. Parker, Peoria, "Blood Dyscrasias."——The Adams County Medical Society was addressed, April 14, by Dr. Karl A. Meyer, Chicago, on "Surgery of Gastric and Duodenal Ulcer," and by Dr. Henry B. Culver, Chicago, on "Chronic Obstruction of the Vesical Neck of the Male."

Chicago

Personal.—Rear Admiral Norman J. Blackwood, U. S. Navy, who retired from the service in January, has been appointed superintendent of the Provident Hospital and Training School.

Hospital News.—Ground was broken for the new La Rabida Jackson Park Sanatorium, March 10, which will contain 120 beds.——The name of the Catholic-Cook County Hospital Association was recently changed to the Chicago Hospital Association; J. Dewey Lutes, superintendent of the Lakeview Hospital, Chicago, is president.

Society News.—A joint meeting of the Illinois Society for Mental Hygiene and the Chicago Medical Society was held, April 9, the speakers and the subjects being Drs. H. Douglas Singer, "Modern Hospital for Mental Cases: Its Special Requirements"; Charles F. Read, "A Modern Institution for the Feebleminded: Its Special Requirements and Problems," and Ralph C. Hamill, "Review of the Program and Work with Conditions in Illinois by the Illinois Society for Mental Hygiene."——Dr. John R. Neal, Springfield, will address the Chicago Medical Society, April 23, on "Legislative Work of the State Medical Society."——Dr. Edward H. Ochsner lectured, April 16, in the New Library Building, University of Illinois College of Medicine, on "Medical Economic Fundamentals, or the Business Side of Medicine."——A joint meeting of the Chicago Roentgen Society and the Chicago Orthopedic Club was addressed, April 10, by Dr. John R. Mitchell, Joliet, Ill., on "Charcot Spine Associated with Hypertrophic Arthritis"; Dr. Charles A. Parker, "X-Ray Appearances in Actinomycosis and Blastomycosis of the Spine," and Dr. Edward S. Blaine, "Post-Traumatic Vertebral Collapse."——Dr. Edward L. Cornell showed moving pictures on eclampsia, face and breech delivery before the Brooklyn (N. Y.) Medical Society, March 31.——The Chicago Gynecological Society was addressed, April 18, by Drs. Mark T. Goldstine and Samuel J. Fogelson on "Treatment of 'Irregular Uterine Hemorrhage' by the Female Sex Hormone," and by Dr. Gustav Kolischer on "Cystitis and Pyelitis in the Female."——Dr. Anthony J. Lanza, New York, will speak on "Tuberculosis in Industry" before the new industrial department of the Chicago Tuberculosis Institute, April 25. The occasion will mark the renewal of the industrial conferences of the institute inaugurated more than twenty years ago by the late Dr. Theodore B. Sachs. Dr. Harry E. Mock will speak on "Tuberculosis Among Chicago Industries."——Dr. Paul Klemperer, New York, addressed the Research Club of the College of Medicine, University of Illinois, April 9, on "Arteriolonecrotic Nephrosclerosis."

LOUISIANA

State Medical Meeting at Shreveport, April 29.—The fifty-first annual meeting of the Louisiana State Medical Society will be held in Shreveport, April 29-May 1, with headquarters at the Washington-Youree Hotel and under the presidency of Dr. Frank T. Gouaux, Lockport. The guest speakers will be Drs. Walter C. Alvarez, Rochester, Minn., "Puzzling Types of Indigestion"; Reginald Burbank, New York; Hugh McCulloch, St. Louis; William Russell MacAusland, Boston; David M. Davis, Baltimore, "Urology on Perineal Prostatectomy," and Eugene R. Carpenter, Dallas.

MICHIGAN

Decrease in Meningitis.—The commissioner of health reported, April 8, that the prevalence of meningitis this winter had been nearly 50 per cent less than during 1928. Last May the number of cases totaled 365 and the mortality rate was nearly 50 per cent. Last year, of the total number of cases in the whole state, the four industrial counties of the southeastern section reported nearly 90 per cent.

Graduate Course at Detroit.—The department of postgraduate medicine of the University of Michigan Medical School and the Michigan State Medical Society offer three week courses for graduates in general medicine and surgery, June 2-21, at Detroit; the subjects covered will be serology, pediatrics, modern laboratory methods and roentgenology. Further information may be had on addressing the Department of Postgraduate Medicine, University Hospital, Ann Arbor, Mich.

MINNESOTA

University News.—Medical books valued at more than $1,000 have been contributed to a student library in Millard Hall at the University of Minnesota by Jesse F. McClendon, Ph.D., of the medical school.

Personal.—Dr. Francis E. Harrington, Minneapolis, was tendered a dinner, recently, marking the tenth year of his service as city health commissioner.——Dr. George A. Holm, Minneapolis, was recently given a farewell dinner; Dr. Holm will become senior physician at St. Elizabeth's Hospital, Washington, D. C.

Prize for Research in Clinical Medicine.—The Minnesota Society of Internal Medicine is offering the fourth annual prize of $250 "to the practicing physician, exclusive of members of this society, in the state of Minnesota who has been deemed most worthy to receive a prize in research in clinical medicine." All physicians in active practice and who are legal residents of Minnesota may become candidates for the award; those who are employed in government service are eligible if their legal residence is the state of Minnesota. Physicians who are whole-time teachers in teaching institutions may not become candidates for this prize. All theses should be submitted to Dr. Ernest T. F. Richards, chairman of the committee on award, Hamm Building, St. Paul, before October 1.

MISSISSIPPI

Bills Introduced.—S. B. 293 proposes to prohibit the manufacture or sale of adulterated, misbranded, insufficiently labeled or deleterious food, and to provide for the inspection and analysis of foods. H. B. 709 proposes to amend the law regulating the practice of pharmacy by providing that the term "registered pharmacists," as used in the act, shall comprise all persons who have secured licenses to practice pharmacy prior to the passage of the act and all persons over 21 years old and of good moral character who pass satisfactory examinations before the state board of pharmacy.

Society News.—Among others, Dr. Grover C. Terrell, Prentiss, and Dr. Robert A. Strong, New Orleans, addressed the South Mississippi Medical Society, Hattiesburg, March 13, on "Treatment of Hemorrhoids by the Injection Method," and "Summer Diarrhea in Infancy and Early Childhood," respectively.——The Northeast Mississippi Thirteen County Medical Society was addressed at Booneville, March 18, by Dr. F. L. McGahey, Calhoun City, "on Pyelitis"; Dr. Hugh A. Gamble, Greenville, president, state medical society, "Relation of Organized Medicine to the Physician and His Obligation to It"; Dr. Seale Harris, Birmingham, Ala., "Conserving the Health and Prolonging the Life of the General Practitioner"; Dr. Samuel L. Stephenson, Corinth, "Rhinitis in Children," and Dr. Will W. Strange, Booneville, "Prevalence and Treatment of Gonorrhea."——Dr. Thomas R. Beech, Ellisville, has been appointed health officer of Jones County on a part-time basis, succeeding Dr. Hardie R. Hays.

MISSOURI

Personal.—Dr. James R. Bridges, Kahoka, was appointed deputy state health commissioner of Clark County, April 1, for a term of three years.——Dr. Samuel J. Will, Jefferson Barracks, celebrated his fiftieth year in the practice of medicine, March 4.——Dr. Robert Thomas Hill, Columbia, aged 93, was recently appointed chief of surgeons of the Missouri Confederate Veterans.

Society News.—"Congenital Syphilis" was the subject of Dr. Walter Clarke, New York, before the meeting of the Jackson County Medical Society, April 1; the society was addressed, April 8, by Drs. John F. Barnhill, Indianapolis, and Leo C. Huelsmann, Colorado Springs, Colo., on "Acute and Chronic Sinus Disease" and "What Can We Do for the Cure of Tuberculosis," respectively. At the annual presidents' night banquet, April 15, a medical skit, in charge of Dr. Raymond E. Teall, Kansas City, was presented. Dr. Herbert M. Evans, Berkeley, spoke on "Function of the Anteriof Lobe of the Pituitary Gland."——Drs. Eugene S. Auer and Grover B. Liese addressed the St. Louis Medical Society, April 1, on "An Early Test for Pregnancy—Its Practicability and Reliability"; Dr. Hugo Ehrenfest, "External Version," and Drs. George Gellhorn and Alexander J. Kotkis, "Electrocardiogram of the Unborn Child."

State Medical Meeting at Hannibal, May 12-15.—The seventy-third annual session of the Missouri State Medical Association will be held at Hannibal, May 12-15, under the presidency of Dr. Tolman W. Cotton, Van Buren. Dr. William Gerry Morgan, President-Elect of the American Medical Association, Washington, D. C., will be the guest of honor. There will be symposiums on contagious diseases, chest diseases in childhood, gynecology and obstetrics and abdominal surgery. Drs. Willard Bartlett, St. Louis, will speak on "A Modern Conception and Plan of Anesthesia"; Donald R. Black, Kansas City, "Circulatory Disturbances in Diabetes"; Frederick B. Campbell, Kansas City, "Diagnosis of Common Anorectal Diseases," with motion picture demonstration; William J. Gallagher, St. Louis, "Primary Carcinoma of the Fallopian Tube"; James R. McVay, Kansas City, "Bilateral Stones in the Kidney"; Marcus Pinson Neal, Columbia, and Burton T. Simpson, Buffalo, "Diseases of the Male Breast," and Samuel H. Snider, Kansas City, "Indication for Artificial Pneumothorax in Tuberculosis," illustrated.

NEW JERSEY

Bills Enacted.—The following bills have become laws: S. B. 117, providing for liens in favor of hospitals, physicians and nurses for the care of persons injured in accidents, on any judgment or settlement obtained by the injured persons by reason of the accident; S. B. 83, providing that a correction in a death certificate shall be signed by the physician, coroner, undertaker or informer whose name appears on the certificate, and that undertakers shall not have authority to correct or amend statements concerning causes, or duration of causes, of death.

NEW YORK

Bill Enacted.—H. B. 494, providing that persons, firms or corporations engaging in the business of procuring persons to donate human blood for blood transfusions shall be licensed by the local health officer, has become a law.

New York City

New Eye Clinic Opened.—The New York Association for the Blind has opened the Lighthouse Clinic for the Prevention of Blindness at 114 East Sixtieth Street. This clinic, said to be the first in the city to be open in the evening, is intended for wage earners who find it difficult to attend daytime clinics and for the preschool child. It will cooperate with other eye clinics but will concentrate on the prevention of blindness.

Personal.—Dr. Lewis J. Doshay has recently been appointed psychiatrist to the Children's Court of New York City.——A memorial meeting was held in honor of Dr. Richard Mills Pearce, Jr., April 15, at the Rockefeller Institute for Medical Research, the speakers being George E. Vincent, Ph.D., formerly president of the Rockefeller Foundation; Dr. David L. Edsall, dean, Harvard University Medical School; Dr. Howard T. Karsner, professor of pathology, Western Reserve University School of Medicine, Cleveland, and Dr. Simon Flexner, director, Rockefeller Institute. Dr. Pearce, who died in February, had been general director of the division of medical education of the Rockeller Foundation since 1920.

No Fatal Smallpox in Seventeen Years.—New York City experienced one of the healthiest winters in its recent history, according to department of health officials. Contagious diseases have greatly decreased, but during March the health wave was broken by an epidemic of measles which was not as widespread as similar epidemics in 1926 and 1928. There was about 30 per cent less employment among nurses than in corresponding months last year. With the use of toxin-antitoxin, cases of diphtheria have decreased 50 per cent. There has not been a smallpox death in New York, it is reported, in seventeen years. Deaths from tuberculosis have been brought down to 70 per hundred thousand of population. An increase is noted in insanity and diabetes, and cardiac disease.

NORTH CAROLINA

Appointments to Faculty at Duke University.—The following new appointments to the faculty of Duke University Medical School, which will be opened in the fall, have been announced:

Dr. Harold Lindsay Amoss, associate professor of medicine, Johns Hopkins University, full professor of medicine.
Dr. Julian D. Hart, associate professor of surgery at Johns Hopkins, professor of surgery.
Dr. Wiley Davis Forbus, associate in medicine at Johns Hopkins, professor of pathology.

William A. Perlzweig, Ph.D., associate in medicine at Johns Hopkins, professor of physiologic chemistry.
Francis Huntington Swett, Ph.D., associate in anatomy at Vanderbilt University School of Medicine, Nashville, professor of anatomy.
Dr. Oscar Carl Edward Hansen, associate in medicine at Johns Hopkins, will be associated with the medical department.
Dr. Christopher G. Johnson of the Rockefeller Hospital, New York, will also be associated at the medical school.

OHIO

State Medical Meeting at Columbus, May 13-15.—The eighty-fourth annual meeting of the Ohio State Medical Association will be held at Columbus, May 13-15, with headquarters at Neil House, and under the presidency of Dr. Albert H. Freiberg, Cincinnati. The tenth annual golf tournament of the Ohio State Medical Golfers' Association will be played at the Columbus Country Club, Monday, May 12; prizes will be awarded. The guest speakers include Drs. Leonard G. Rowntree, Rochester, Minn., whose subject will be "Results of Sympathetic Ganglionectomy and Ramisectomy in Treatment of Chronic Arthritis"; John O. Polak, Brooklyn, "Fads and Fancies of Obstetrics and Gynecology"; Willard C. Rappleye, New Haven, Conn., "Medical Problems and Education"; Hugh Cabot, Ann Arbor, "Choice of Anesthetics with Particular Relation to Protection of the Patient"; Cyrus C. Sturgis, Ann Arbor, "Appraisal of Therapeutic Measures Used in Treatment of the Anemias"; Charles L. Scudder, Boston, "Reasons for Treatment Advocated in Certain Fractures"; George M. Coates, Philadelphia, "Chronic Suppurating Ears"; John Sundwall, Ann Arbor, "New Public Health and the Physician," and Clayton C. Kohl, Ph.D., Bowling Green, "Health Education and the Physician." A symposium on glaucoma will be a feature of the meeting of the eye, ear, nose and throat section on Tuesday.

PENNSYLVANIA

Society News.—At the annual meeting of the Catholic Hospital Association of Pennsylvania, held at Mercy Hospital, Pittsburgh, March 25, addresses were given by Alphonse M. Schwitalla, S.J., dean of St. Louis University School of Medicine, on "Catholic Hospitals of the United States and Canada"; Dr. Malcolm T. MacEachern, director, hospital activities, American College of Surgeons, "Our Defects—How Shall We Correct Them," and Dr. George J. Wright, Pittsburgh, "Psychology of Caring for the Patient."

Philadelphia

Personal.—Dr. Clarence A. Whitcomb, formerly on the staff of the Henry Phipps Institute, University of Pennsylvania, has been engaged for the position of full-time internist at Jeanes Hospital, Fox Chase, and Dr. Willard S. Hastings, formerly director, Cayuga County Laboratories, Auburn, N. Y., full-time pathologist.——A portrait of Dr. Edward Q. Thornton, for thirty-eight years an associate professor at Jefferson Medical College, was presented, April 7, as the gift of the senior class to the college.

Cancer Meeting.—The Philadelphia County Medical Society will hold a cancer control meeting, April 23; the speakers at the afternoon session will be Drs. George E. Pfahler, Jay F. Schamberg, Brooke M. Anspach, John B. Carnett, Henry K. Pancoast and Damon B. Pfeiffer. Drs. Chevalier Jackson will speak in the evening on "Tumors, Benign and Malignant, of the Larynx and Lungs"; James Ewing, New York, "Efficiency of Modern Methods in Treatment of Malignant Diseases," and Daniel Fiske Jones, Boston, "Cancer of the Rectum."

Testimonial to Dr. Da Costa.—A dinner will be given in the Bellevue-Stratford Hotel, preceding the scientific program arranged for Wednesday, April 30, in honor of Dr. John Chalmers Da Costa. A charge of $10 per plate is asked for the purpose of establishing a fund to be known as the Da Costa Foundation to be used by the Philadelphia County Medical Society for educational purposes. The speakers will be Drs. Da Costa; Walter E. Dandy, associate professor of clinical surgery, Johns Hopkins University School of Medicine, Baltimore, on "Diagnosis and Treatment of Lesions of the Cranial Nerves"; Rudolph Matas, emeritus professor, general and clinical medicine, Tulane University, New Orleans, "Postoperative Thrombosis and Embolism: The Present Status of the Question," and John B. Deaver, "Hepatitis, the Result of Biliary Tract Infection."

RHODE ISLAND

Bills Introduced.—H. B. 927 proposes to amend the dental practice act by excluding from its provisions the practice of dentistry by a student of a dental college, as a part of the required training of the student, under the supervision of a licensed dentist, in any public hospital, or any institution under the supervision of the state welfare commission, with the approval of the authorities of said dental college. H. B. 997 proposes to increase the annual salary of a member of the narcotic drug board to $1,000. H. B. 962 proposes to amend the law regulating the sale and distribution of narcotics by adding to the list of drugs deemed to be narcotics barbital, diethylbarbituric acid, veronal, or any salt, compound or derivative of the same. H. B. 1008 proposes to provide that Jamaica ginger or tincture of Jamaica ginger shall be sold, dispensed or offered for sale only on the prescription of a duly licensed physician.

TEXAS

Society News.—The South Texas District Medical Association was addressed at its sixty-seventh semiannual meeting at Lufkin, April 10-11, among others, by Dr. James C. Anderson, state health officer, Austin, on "Malaria Control"; Dr. Richard E. Barr, Orange, "Mastoiditis Without Clinical Symptoms of Mastoid Disease"; Dr. William E. Smith, "Epithelioma of the Lower Lip," and Dr. Edwin Ghent Graves, Houston, "Early Myocardial Insufficiency."——The Harris County Medical Society held a symposium on goiter, March 5; the speakers were Drs. James A. Hill and Franklin H. Kilgore, Houston, and Charles W. Barrier, Fort Worth.

VIRGINIA

Academy Sponsors Graduate Clinic.—The Richmond Academy of Medicine, cooperating with the department of clinical education of the state medical society, will hold a graduate clinic for physicians in Virginia during the afternoon and evening of April 22. Cases will be demonstrated at the Memorial and St. Philip hospitals in the afternoon, together with practical demonstrations of newer methods of diagnosis, such as the actual use of the electrocardiogram and the basal metabolism determination. In the evening the guest speakers will be Dr. O. H. Perry Pepper, professor of clinical medicine, University of Pennsylvania School of Medicine, Philadelphia, and Dr. Harold L. Amoss, professor of medicine at Duke University School of Medicine, Raleigh, N. C.

WASHINGTON

Society News.—The King County Medical Society was addressed, April 7, by Dr. Clarence A. Smith, Seattle, on "Galvanic Therapy," and by Dr. Carl J. Johannesson, Walla Walla, on "Cholecystography Correlated with Gastro-Intestinal Study." The society is sponsoring a graduate medical course at Washington University, July 14-18; the lecturers will be Dr. Edward S. Judd, Mayo Clinic, Rochester, Minn.; Dr. Thomas Addis, Stanford University School of Medicine; Karl F. Meyer, Ph.D., University of California, and Dr. Joseph Brennemann, Chicago.

GENERAL

Accident in Greek Eye Clinic.—C. Simopoulos, minister of Greece, Washington, D. C., has sent out the information that notices printed in the newspapers concerning forty children reported to have been blinded in the clinic at Kessariani were not wholly correct. Subsequent telegrams stated that there has been no question of blinding. The incident is reported to have been used in the advertising of a group of optometrists.

Bill to Coordinate Government Health Activities Passed.—President Hoover, April 9, signed the bill providing for certain coordination in the health activities of the federal government and for changes in the organization of the personnel of the public health service. On the request of the head of an executive department carrying on a public health activity officers from the public health service may be detailed from the public health service to cooperate in its work. Details may be made from the personnel of the public health service to educational and research institutions for special studies of scientific problems relating to public health and for the dissemination of information relating to public health. The facilities of the public health service may be extended to health officers and scientists engaged in special studies.

Dentists, sanitary engineers and pharmacists are to be added to the commissioned corps. When commissioned officers are not available for performance of permanent duties requiring the highest specialized training and experience in scientific research, the President, by and with the advice of the Senate, may appoint qualified persons from outside of the service to perform such duties.

The surgeon general of the public health service is to be entitled to the same pay and allowances as the surgeon general of the army and, subject to certain exceptions, the commissioned officers in the public health service are to be promoted according

to the same length of service and receive the same pay and allowances as are now or may hereafter be authorized for officers of corresponding grades of the medical corps of the army. The act provides that no regulations which may be prescribed as to the qualifications for appointment as medical officers or employees shall give preference to any school of medicine. Provision is made for the reorganization of the advisory board of the Hygienic Laboratory, and it is charged with the duty, in addition to its other functions, of advising the surgeon general in respect to public health activities. Hereafter it is to be known as the National Advisory Health Council.

Medical Bills in Congress.—S. Con. Res. 14, requesting the Secretary of the Navy to detail a medical officer for duty as physician to the Senate and House of Representatives, has passed the Senate. S. 255, a bill "for the promotion of the health and welfare of mothers and infants," has been reported without amendment (Report 369). S. 1742, authorizing Arthur S. Judy, lieutenant commander, Medical Corps, U. S. Navy, to accept the distinguished service medal tendered to him by the president of the Republic of Haiti for his services in connection with the health department of the Garde d'Haiti, has passed the Senate. S. 2414, authorizing the government to participate in the International Hygiene Exhibition at Dresden, Germany, May 6 to October 1, 1930, has passed the Senate. S. 3425, authorizing an additional appropriation of $125,000 to erect a children's tuberculosis hospital in the District of Columbia, has passed the Senate and has been favorably reported to the House (Report 1132). H. R. 10865, authorizing Dr. William S. Thayer and Dr. William H. Welch to accept the awards of the Legion of Honor, has passed the Senate. H. R. 8807, a bill to provide for the coordination of the public health activities of the government, has been signed by the President. H. R. 11577, introduced by Representative Gasque, South Carolina, proposes to authorize an appropriation of $3,000,000 to establish a branch home of the National Home for Disabled Volunteer Soldiers in South Carolina. H. R. 11584, introduced by Representative Swick, Pennsylvania, proposes to authorize the appropriation of "such sum as is necessary" to erect an addition to veterans' hospital 103, Aspinwall, Allegheny County, Pennsylvania. S. 4132, introduced by Senator Goff, West Virginia, proposes to amend the World War Veterans' Act to make it mandatory that the director of the Veterans' Bureau furnish hospitalization to honorably discharged veterans of the Spanish-American War, the Philippine insurrection, the Boxer rebellion or the World War, suffering from any physical or mental disability, without regard to the nature or origin of such disability, and further proposes to provide that the term "veteran" shall be deemed to include those persons retired or otherwise not dishonorably separated from the active list of the army or navy.

FOREIGN

Graduate Course on Mental Deficiency.—A course of lectures on mental deficiency supplemented by clinical instruction will be held at the University of London, Imperial Institute Road, S. W. 7, through the cooperation of the Central Association for Mental Welfare and the university. The first course will be held from May 5 to 10, and the second from May 12 to 17. The lectures will cover the nature and pathology of mental deficiency. Applications may be sent to the University Extension Department, University of London, South Kensington, S. W. 7.

New American Hospital at Tokyo.—The cornerstone of the first unit of the new St. Luke's International Medical Center, a $6,000,000 Americo-Japanese cooperative enterprise, was laid, March 28. The new institution which will rise on the site of the old St. Luke's Hospital, which was destroyed in the earthquake and fire of 1923, will ultimately have 500 patients. It will contain a large wing for outpatient clinical service with a capacity of from 700 to 1,000 patients a day. The hospital's public health department will care for all of the persons living in the Kyobashi Ward, in which the medical center will be located. Headquarters for school clinics for the care of 12,000 pupils in the thirteen public schools will be in the center. The east wing will house the college of nursing. Among the contributors are the Rockefeller Foundation, the emperor of Japan and John D. Rockefeller, Jr. When completed the center will have a staff of 150 Japanese nurses; five American nurses, who will teach on the nursing college staff; forty-six Japanese and three American physicians. Dr. Rudolf Bolling Teusler, who founded the original hospital in 1902, will continue to head the institution.

Society News.—The French Society of Ophthalmology will open its forty-third congress, May 12, at the Faculté de médecine of Paris. For further information address the general secretary, Dr. Rene Onfray, 6 avenue de la Motte Picquet, Paris VII[e].——The third annual convention of the German Society for Research on Circulation of the Blood will be held in Dresden, June 11-12. Further information may be had from Bruno Kisch, Köln-Lindenthal, Lindenburg.——The Osler Club, London, was addressed, March 12, by Dr. W. R. Bett on "The Religion of a Medical Historian." J. Playfair McMurrich, Ph.D., University of Toronto, has been appointed corresponding member to the club for Canada.——The third International Congress of Radiology will be held in Paris at the end of July, 1931. The secretary general is Dr. Ledoux-Lebard, 122, Rue La Boëtie, Paris (VIII[e]).——"Investigation Into the Etiology of Yellow Fever with Special Reference to the Problem of Insect-Borne Diseases" was the subject of a paper presented before a recent meeting of the Royal Society of Tropical Medicine and Hygiene in London by Max H. Kuczynski and Bianca Hohenadel, Berlin.——The International League for Campaign Against Trachoma will meet in Geneva, July 26; the league was founded at the thirteenth International Ophthalmological Congress; the president is Dr. Emile de Grósz, Budapest, VIII, Baross-U.10.——The next congress of the International Society of Orthopedic Surgery will be held in Paris, October 2-4. There will be two symposiums included in the program on the treatment of congenital dislocation of the hip after the age of 15 and the treatment of wrist injuries. Dr. J. Delchef, Brussels, is the general secretary.

Government Services

Change of Station in the Navy

Lieut. Comdr. Leon W. McGrath has been ordered to the naval station, Guantanamo Bay, Cuba, about May 14; Lieut. Thomas G. Hays to the U. S. S. *Henderson*, about March 25, and Lieut. Comdr. Edward E. Woodland to the navy hospital, New York. Lieut. Robert J. Lawler was relieved of all active duty, about March 10, and ordered home; Comdr. Lawrence M. Schmidt has been ordered to the U. S. S. *Arkansas* about May 25; Comdr. Edward V. Valz to the marine barracks, Parris Island, S. C., about June 1. Lieut. Edgar L. Olson's resignation has been accepted, effective April 14; Comdr. Charles E. Ryder was relieved of all duty, April 1, and ordered home; Lieut. Earle E. Dockery has been transferred to the naval station, Guam; Lieut. Comdr. William B. Hetfield to the second brigade, U. S. Marines, Managua, Nicaragua, about April 10; Lieut. Harvey E. Robins to the Asiatic Station, about June 7, and Lieut. Comdr. John T. Bennett to the U. S. S. *Relief*, about May 8. Rear Admiral Robert M. Kennedy has been transferred to duty as president of the navy retiring board, the board of medical examinations and the navy examining board for officers of the medical corps of the U. S. Navy; Lieut. Gerald W. Smith has been transferred from the receiving ship, San Francisco, to the naval academy; the resignation of Lieut. Everett N. Jones was accepted, effective March 27; Lieut. Comdr. Norman Roberts has been transferred to the U. S. S. *Henderson*, effective about July 20, and Lieut. Emmett J. Brady from the U. S. S. *Chaumont* to the navy hospital, San Diego, Calif.; Lieut. Malcolm G. Millar's resignation has been accepted, effective April 28.——Capt. Albert J. Geiger will be transferred from the navy hospital, San Diego, Calif., about May 1, to the marine corps base, San Diego; Lieut. Comdr. Arthur Freeman to the second brigade, U. S. Marines, Nicaragua; Lieut. George W. Wilson from the navy hospital, Washington, D. C., about May 3, to the navy hospital, Norfolk, Va.; Capt. Montgomery A. Stuart from the Navy Medical School, Washington, D. C., about July 24, to duty as director general of the Public Health Service, Republic of Haiti.

U. S. Public Health Service

Asst. Surg. William C. Plumlee was relieved from duty at Rolla, Mo., April 12, and assigned to duty at the relief station, Washington, D. C.——Acting Asst. Surg. L. M. Taylor has been relieved from duty at Tampico, Mexico, and assigned to duty at San Diego, Calif.——P. A. Surg. Octavius M. Spencer has been relieved from duty at Ellis Island, N. Y., and assigned to duty at the marine hospital, San Francisco, effective about April 5.——Acting Asst. Surg. Joseph H. Jones was relieved from duty at Louisville, Ky., April 7, and assigned to duty at the marine hospital, Baltimore.——Acting Asst. Surg. Bradley D. Hodgkins has been relieved from duty at the marine hospital, Baltimore, and assigned to the marine hospital, Louisville, Ky.——Asst. Surg. Houston G. Foster has been relieved from duty at Glasgow, Scotland, and assigned to duty at the marine hospital, Chicago.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 29, 1930.

The Lowest Birth Rate Again

The birth rate continues to fall. For England and Wales it was 16.2 per thousand in 1929, as against 16.7 in 1928. The severe influenza epidemic of last year and to a less extent the period of arctic cold in January and February took a heavy toll, so that the death rate was 13.4 against 11.7 in 1928. The infant death rate was the highest since 1925, being 74 per thousand live births. The combination of a low birth rate with a high death rate diminished the margin of births over deaths, so that the natural increase of population was only 111,693 against an annual average of 220,928 in the five preceding years. The chief causes of death were heart disease and respiratory diseases, including influenza, cancer and tuberculosis. On the other hand there was an increase in the marriage rate, which rose from 15.4 in 1928 to 15.8 in 1929, the highest rate since 1921. In press interviews some prominent persons have given their views on the falling birth rate. Dame Mary Scharlieb (gynecologist) says that the main cause is the uncertainty of economic conditions, but also people are much more selfish than they used to be and much more given to pleasure. "The artificial excitement of the life women lead and the practice of artificial control put their nervous systems out of order. They put off having babies. . . . It was in France that the birth rate first began to fall. Germany followed and has now passed France. We are going the same way. The British Empire is like a magnificent estate with no one to work it. Even in the dominions, where they want men, they practice artificial control." Prof. Leonard Hill, the physiologist, sees a grave menace in the decline of the birth rate among European nations while that of Eastern countries is increasing. "The falling birth rate might be the beginning of the end of the British Empire. It is the natural reaction in this country to the crowded cities. There are economic difficulties, and men find it difficult to emigrate. The city life that we lead reduces fertility. Another comment is that the figures do not reveal the greatest menace, for it is the birth rate of the fit, not that of the unfit, which is falling. The children of the latter are born in large numbers and the fit have to keep them and so cannot afford to have children of their own. The allusion is to the immense sums now spent by the government in various forms of public assistance—health insurance, unemployment insurance, housing, free medical treatment and free meals for school children. The people of this country can now be divided into two classes—those who receive benefits from taxation and those who pay for them. The great majority of the latter are not rich but have great difficulty in maintaining their standard of life, which often they could not do if they procreated like the others."

Birth Control Clinics

In its report for 1928-1929 the committee of the Society for the Provision of Birth Control Clinics records progress. The number of affiliated centers has been increased to twelve. Instruction in contraception was given to 3,799 women. A number of medical officers of psychopathic hospitals and tuberculosis sanatoriums have referred discharged patients and patients' wives to the centers for advice, a practice which the committee hopes will become general. The society is represented on the Birth Control Investigation Committee, which is pursuing research on the efficacy of the present contraceptive methods and is seeking a more satisfactory method than is now available. The committee thinks that public opinion is now ripe for a great extension of the society's activities and, given the necessary financial support, would open a center in every large town.

Side Roads and Motor Traffic

The Greater London Regional Planning Committee has published its first report. The committee was established in 1927 on the initiative of the minister of health and consists of representatives of the London county council and of the county councils of Essex, Herts, Kent, Middlesex, Surrey and Bucks—counties in which London is situated and into which it is growing. The technical adviser of the committee, Mr. Raymond Unwin, estimates that at least 62 square miles of additional playing fields and 142 square miles of other open spaces are needed. The area dealt with is roughly that within a radius of 25 miles from Charing Cross, which now has a population of 9 millions. It is suggested that half-mile belts of open country be preserved within radii of 10½, 14½ and 20¾ miles from Charing Cross. The committee has been impressed by the unfortunate character of the ribbon development taking place along many of the new arterial roads in the area and by the injury thus inflicted on the traffic capacity and convenience of these roads by the entry on them of frequent side roads and approaches to houses. Within the Greater London area the minister of transport should exercise his powers to purchase land on each side of new main roads, and the development of the frontage lands on each side should be controlled by him.

Drawbacks of Open-Air Schools

Open-air schools are used for certain delicate children for whom they are prescribed. In a report to the industrial health research board, Dr. H. M. Vernon and Dr. Thomas Bedford state that during cold weather the children attending unheated open-air schools are not able to work with more than about half the average efficiency of children attending ordinary warmed schools, and even then they need special aids to maintain bodily warmth, such as extra food and clothing. The report asks, "Cannot the open-air principle be applied in some less drastic form, whereby most of its advantages are retained without its disadvantages?" The conclusion reached is that even the semi-open-air system could be improved so as to attain this end. The heating should be increased so that the air temperature of the rooms is maintained at a higher level than at present without diminishing the degree of air movement induced by open doors and windows. It is pointed out that probably the best heating system is a combination of the under-floor and ceiling-panel methods. Under-floor heating is also recommended as a substitute for the hot-water pipe and radiator system now employed in most schools. The semi-open-air school could be further improved by very careful control of the doors and windows, so as to equalize the cooling power of the air to which the children are exposed. Most important of all, children in such a school should never in cold weather sit at their work for more than an hour at a time. At present they often sit uninterruptedly for an hour and a half or an hour and three quarters. Also the children must be kept adequately nourished. Under-floor heating was employed by the Romans, when the heat from the hypocaust was conducted under the floor. It was recently adopted in Liverpool Cathedral and is in use in a few schools in this country.

Sanitary Improvement in West Africa

The West African colonies include the Gambia, Sierra Leone, the Gold Coast and Nigeria. That part of Africa was once so unhealthful that it was known as "the white man's grave." Thanks to the attention paid to sanitation, a vast improvement has taken place. From 1881 to 1897, Gold Coast officials had a death rate over 75 per thousand. For 1928 the rate for officials over the whole of the West African colonies

was only 6.7. Prof. B. Blacklock of the Liverpool School of Tropical Medicine, in a lecture on "Health in West Africa," said that these remarkable results were obtained only by the cooperation of all the white residents. Europeans in West Africa could keep free from disease only by great care of themselves. By innumerable tedious devices the white man had proved that he could at least survive and work in West Africa. But there was a danger of forgetting the past and people were now not so careful as they were a few years ago. The European did not feel fit in the West African low lying country. The climate enervated him and he rarely had the sense of physical well being that he enjoyed at home. Better housing and more suitable recreation would help to eliminate this disability. The problem of trying to bring the housing, diet and general sanitation of the native up to a reasonable standard was colossal. A great deal could be done by education of the native in elementary hygiene. The provision of motor roads would bring to thousands of natives much needed medical and surgical help.

A Pregnancy Diagnosis Station

A new departure in this country is the pregnancy diagnosis station of the University of Edinburgh, which has been established with the help of the animal breeding research department by the professor of obstetrics, Dr. J. W. Johnstone. For a modest fee, which covers merely the cost, physicians are invited to send specimens of urine for the performance of the Zondek-Aschheim test for the pituitary hormone. The response has been gratifying and shows the need for a reliable means of diagnosing early pregnancy.

PARIS

(From Our Regular Correspondent)

March 12, 1930.

Magnesium and Old Age

Professor Delbet has become an advocate of the essential rôle of magnesium in general metabolism. In articles that have been widely read in France he has presented magnesium as a preventive of cancer, and many persons here are taking a daily dose of a special preparation of magnesium chloride in the hope of protecting themselves. Dubar of Dijon and Albert Robin formulated this theory twenty years ago. Delbet has called attention to the rôle of magnesium as a stimulant of hepatic secretions and as a preventive of biliary calculi, and recently before the Academy of Medicine he discussed magnesium as a potent means of retarding senility. His opinion is based on the chemical analysis of the tissues. Two chemists, in a communication to the Academy of Sciences on the analysis of the brains of aged persons, stated that they found more magnesium than calcium. Delbet believed, on the contrary, that magnesium disappears from the vital organs in old age, so he requested Professor Breteau at the Ecole militaire de santé and a member of the Academy of Medicine to repeat the analyses. The analyses were, therefore, repeated on the brains and the testes of infants, adults and the aged. The results agreed for the two series of organs. They showed the diminution of the proportion of magnesium to calcium from childhood to old age. The amount of magnesium equals that of calcium at birth but gradually decreases until it is only one-third that of calcium. The disappearance of magnesium is therefore a consequence of senility or, at least, coincides with it. Delbet conducted researches to discover whether the diminution was due to the decreased ingestion of magnesium-containing foods or to the incapacity of the cells to store magnesium. He reached the conclusion that both factors play a part. He advises, therefore, to introduce magnesium in the diet before it is too late for the organism to assimilate it. He believes that this constitutes a worth-while method of retarding the onset of old age.

Hygienic Measures Adopted in the Flooded Areas.

Floods that recently ravaged eight departments of southern France with the loss of hundreds of lives have caused, in addition, insanitary conditions. The waters, laden with filth and contaminated by the bodies of animals, have filled up the wells, rendering the water undrinkable. Mud has been deposited over a vast area, covering the interior of houses. It is feared that serious epidemics may occur. The minister of public health and the public health services have taken precautions. Trucks pass through the devastated villages daily and distribute from tanks supplies of drinking water. The use of water from the inundated wells is formally prohibited until the wells have been disinfected by potassium permanganate and chlorinated lime. Should the distribution of water by trucks be interrupted, the inhabitants are instructed to boil the water for drinking for at least ten minutes. Houses that have been inundated must be whitewashed. Bodies of animals should be burned or buried deeply, and at least 50 meters from springs and wells. Stables in which animals have died must be cleaned and disinfected. The prefects of the inundated departments are instructed to call the attention of all to the need of great bodily cleanliness, and, more particularly, to the necessity of washing the hands before meals. These recommendations are brought to the attention of the population by posters and announcements of the mayors. Disinfection crews under the direction of a physician are charged with distributing antiseptic products and with the giving of advice in regard to every circumstance. Thus far the sanitary condition of the inundated regions has remained good.

The New Minister of Health

The recent ministerial crisis, which was the occasion for reorganization of several departments, furnished an opportunity to reestablish the special ministry of health, which was created in 1924 under the direction of Senator Paul Strauss but which lasted only two years. Since then it has been combined with the ministry of labor and social insurance, which counts among its functions the supplying of aid to workers and to patients. The organization of these services had suffered considerable impairment. The minister of labor, whose time and attention were absorbed by legislation pertaining to workmen, the preparations for the application of social insurance, the surveillance of the large foreign man power, and the like, had little opportunity to attend to hygienic questions. For years the public and the medical profession have demanded independent health services. They have now been regrouped under the ministry of public health, with Mr. Daniel Ferry, a member of the chamber of deputies, in charge, notwithstanding the fact that he has had no previous experience that would fit him for the post. The new minister will be able to devote himself actively to the redrafting of the old law of 1902 pertaining to the public health service, which is still in force. Such legislation is demanded on all sides.

Insanity and the Radio

The use of the radio in France, as in all countries, has become widespread. While they may not be due solely to the abuse of the radio, certain cases of insanity owing to its influence have shown clinical manifestations that are not found as yet in the textbooks on psychiatry. A farmer of Brittany, a region where religious mysticism is widespread, suddenly became insane after becoming a devotee of the radio. He heard voices which threatened him with death and which ordered him to punish certain persons. Pursued by them, he attempted one night to strangle his wife and then broke down the door of his neighbor. While such hallucinations are not new in psychiatry, it is likely that, in a predisposed subject, voices heard over the radio give them an appearance of reality, which could not fail to strengthen his obsession and to make it more irresistible because more plausible.

Dr. Guéniot Honored

The Academy of Medicine will soon have a centenarian among its members. Dr. Guéniot, who is now 98 years old, has been a member of the academy for fifty years. On the completion of his half century membership, his colleagues took up a subscription among themselves, in order to give him a medallion portrait of himself. At the beginning of the weekly session of the academy, the medallion was bestowed on Dr. Guéniot. All the academicians remained standing while they listened to the address of the president, Dr. Ménétrier, who traced the career of Dr. Guéniot, surgeon to the hôpitaux de Paris. He specialized in obstetrics, and, up to the time of his retirement, was chief physician of the Maternité de Paris. He conducted researches on the influence of miasms on the etiology of epidemics of puerperal fever at the hospital. He has had many pupils. He is still vigorous, having no infirmity other than a slight deafness. He never misses a meeting of the academy and occasionally speaks on communications of a philosophic nature, giving utterance to the wisdom of an old man with a long experience. He responded to the congratulations of the president with a short, witty speech, which was highly applauded. Every one hopes to be able, in two years, to celebrate his centenary.

BELGIUM

(From Our Regular Correspondent)

March 5, 1930.

The Crusade Against Infantile Paralysis

Mr. Baels, minister of the interior and of health, received recently an official call from Dr. Jitta, president of the council on health of the Netherlands, and Dr. Aldeshoff, director of the Institut sérologique de l'état at Utrecht, who were accompanied by Dr. Timbal, director general of the administration of the public health service. The purpose of the consultation was the discussion of the prophylactic measures to be adopted to prevent the spread of infantile paralysis, the return of which, during the summer months, is to be feared. A plan was worked out by which uniform action in Belgium and the Netherlands in this field, which is eminently desirable from every point of view, will be accomplished. There is reason to rejoice over these results. The activities of the hygienists and the physicians of our neighbors on the north will develop in perfect harmony with the plans of the public health service and the practitioners in our country. Furthermore, Belgium and the Netherlands will keep in constant touch with the organizations that in France and Germany deal with this difficult epidemiologic problem.

The Medical Federation and Social Insurance

The directors of the Fédération médicale belge, after taking note of the law pertaining to social insurance, as proposed by the ministers Heyman and Houtard, adopted unanimously the report rendered by the committee on social insurance. The committee holds that the only commendable form of social insurance against sickness is one (1) that entrusts the management to an independent national organization similar to that which controls and supervises the *caisse d'épargne* (savings deposits), the administrative council and likewise the managerial council of the regional *caisses* under its control being composed of representatives of the government, the insured, the managing directors, the medical profession, and the pharmaceutic profession; (2) that would not restrict in any way the activities of the physician, and would allow him to take toward the insured but one attitude, that of supplying the best possible medical protection. . . . As the irreducible minimal conditions on which cooperation in a law pertaining to social insurance against sickness can be expected, the following principles may be set up: 1. The choice of physician must be free; he merely agrees to accept the sanctions of the arbitration committees. 2. The insured will pay his physician directly, according to a fee schedule; the minimal regional fee schedule will be established by the professional unions in harmony with the federal organization having jurisdiction. 3. The right of privileged communication must be respected in every manner. 4. The right to fees for every patient must be granted, irrespective of the place where the medical care was given. 5. Liberty in the choice of treatment and of prescriptions must be absolute. 6. Patients will be controlled by the *caisse* and physicians by their peers, conflicts that may arise between attending physicians and the physician of the *caisse* being settled by the arbitration committee. 7. The professional societies will be represented on the technical commissions created by the law, to promote the functioning of the insurance system. 8. The medical armamentarium indispensable for the proper functioning of social insurance will be organized and controlled by a bureau functioning as a department of the national public health service.

The Twenty-First French Congress of Medicine

The twenty-first Congress of Medicine will open in Liége, Tuesday, September 23, under the chairmanship of Professor Beco. The committee on organization is composed of Dr. Beco, professor at the University of Liége, president; Dr. Stella, professor at the University of Ghent; Dr. Lemaire, professor at the University of Louvain, and Dr. Verhoogen, professor at the University of Brussels, vice presidents; Dr. Roskam, professor at the University of Liége, general secretary; Dr. Schoofs, professor at the University of Liége, treasurer. The following topics on the program have been selected by the general assembly of the association of French-speaking physicians: (1) medical pathology, hyperthyroidism, to be presented by Prof. Marcel Labbé, Drs. Azerad and Gilbert Dreyfus, of the Faculté de médecine de Paris; Dr. Dautrebande, of the Fondation Reine Elisabeth in Brussels; and Professor Bérard, of the Faculté de médecine de Lyon; (2) general pathology, the metabolism of calcium, to be discussed by Prof. L. Blum, of the Faculté de médecine de Strasbourg; Dr. Brull, of the Faculté de médecine de Liége; Drs. P. Weil and Guillemain, of the Faculté de médecine de Paris; Professor Mouriquand, of the Faculté de médecine de Lyon; (3) therapeutics, the therapeutic indications of insulin in diseases other than diabetes, to be treated by Professor Hoet, of the Faculté de médecine de Louvain; Agrégé Professor Aubertin, of the Faculté de médecine de Bordeaux; Professor Bickel, of the Faculté de médecine de Genève, and Le Fèvre de Arric, of the Faculte de médecine de Bruxelles.

Balneothermotherapy in Syphilis

Bessemans, Vergoullie and Hacquaert published recently further results of their application of local balneothermotherapy in the treatment of secondary syphilis in man. They allege that they have shown that balneotherapy, local as well as general, will cure with certainty and in short time the orchitic manifestations of primary syphilis in the rabbit. They applied local balneotherapy to four patients with secondary lesions of the genital organs and the anal region. From their experiences they conclude that: 1. Local balneotherapy (two or more local continuous baths daily at 43 C. [109.4 F.] for a period of from one to three hours) causes to disappear in from three to four days the syphilitic plaques of the skin and mucous membranes but does not prevent the reappearance of new papulous and oozing syphilids after a short time. 2. The goal to be attained is to bring the spirochetal focus to 42 C. (107.6 F.) for one hour or to 40 C. (104 F.) for two hours, the time necessary to kill the germs without altering the tissue cells; no serious untoward incidents were observed. 3. The spirochetes become quiescent and disappear, while the lesions improve and

are healed. 4. The baths do not appear to have had a great influence on the Wassermann test, as it is not modified, or, at the most, its intensity is simply diminished. 5. Before becoming quiescent, under the influence of the baths, the spirochetes pass through a stage of increased mobility, with sudden kinking, which is the preagonal stage. 6. Local balneotherapy in man appears more suitable and more effective than the general balneotherapy proposed by Schamberg and his co-workers. It is just as effective and it does not present the disadvantages of general balneotherapy. To be sure, local balneotherapy should not be employed alone, any more than general balneotherapy, but should be regarded as supplementary to the ordinary antisyphilitic treatment. And even if it should render no service from the point of view of the general recovery of the patient, it will shorten the contagious period of the mucous plaques, which are some of the most dangerous lesions. The method is, therefore, a valuable aid in the social prophylaxis of syphilis.

Professor Calmette's Lecture

The Royal Academy of Medicine, acting in harmony with the Association nationale contre la tuberculouse, invited Professor Calmette to deliver a public address on his researches on preventive vaccination against tuberculosis. The lecture was attended by many representative members of the Belgian medical profession, and likewise by an official delegation of the government of the Grand Duchy of Luxemburg.

Professor Calmette stated that antituberculosis vaccination has been on trial in Norway for a number of years, among adults. The speaker emphasized that the B C G vaccine is harmless and effective. Its use should not be confined to children born in a tuberculous environment. There is abundant proof that the benefits of this vaccination should be accorded to children born of apparently healthy parents. Tuberculosis is often not recognized, and it is therefore illogical not to extend the application of the vaccine to the latter. Humanity and social progress demand it.

BUENOS AIRES

(From Our Regular Correspondent)

Feb. 25, 1930.

Appointments at the National Academy

At the National Academy of Medicine of Buenos Aires, Dr. Eliseo Cantón has been appointed vice president; Dr. Nicolás Lozano secretary, and Dr. Marcelino Herrera Vegas treasurer. The following physicians were elected as permanent members: Dr. J. Obarrio, in the place left vacant by Dr. Fernando Pérez (resigned), and Dr. Alejandro Raimondi in the positon that the late Dr. Pedro J. García left vacant. The contest of the candidates for the positions left vacant by Drs. Francisco P. Lavalle and Domingo Cabred was opened.

Psittacosis

Drs. L. Barros of Córdoba, E. Sabaté of Tucumán, M. Pattin of Alta Gracia and Marquez of Buenos Aires have published clinical reports of cases presenting a rare malady, which they suspect to be psittacosis. The symptoms exhibited by the patients, and the fact that they had come in contact with imported birds or with sick persons who had come into contact with the birds, support that opinion. Dr. Barros first stated that the birds came from Brazil, though at present he states that they were imported from Paraguay. Most of these birds were brought to Córdoba, where many of them died, and the remaining were taken to Tucumán, where they also died. Several persons who came in contact with the birds or took care of them became ill with fever, depression and bronchopneumonic, pneumonic or pulmonary symptoms. The mortality was high. Dr. Barros considers that this has been an epidemic of psittacosis, in his opinion the largest known. The opinion of the medical authorities of Argentina is not frankly expressed, however, because the clinical records were incomplete as to the bacteriologic examination of the sick persons (no bacteriologic examinations were made in the sick birds), there were no inoculations in the birds or in other animals, and no necropsies, with good microbiologic and histologic examinations, were made. If the recent epidemic was psittacosis, it should be admitted that it was deficiently studied. Dr. Barros has left for Germany to continue his observations on the disease there.

Leprosy

The University of the Littoral has published an important pamphlet from the pen of Prof. Dr. E. Fidanza of Rosario on the dissemination of leprosy. In order to check the disease, laws have been enacted in Argentina, though the government has not enforced them because of the unwillingness of some cities to permit the location of leprosariums in their suburbs.

Dr. Araoz Alfaro Honored

Dr. G. Araoz Alfaro has retired from duty, having reached the age limit. In a public ceremony which took place in the assembly hall of the Faculty of Medicine of Buenos Aires before a large audience, he was presented with an illuminated volume. Drs. J. Iribarne, N. Rojas and V. Gallo delivered fitting addresses.

University News

The annual graduation exercises of the University of Buenos Aires took place recently. The anniversaries of physicians who had completed twenty-five or fifty years of practice were celebrated. Dr. Susini made the speech for the former, Dr. R. Bullrich for the latter, and Dr. N. Ferradás spoke in honor of recent graduates. At the same time prizes were delivered to Dr. Heindenreich for studies on the diaphragm, to Dr. Curtis for studies on ocular tuberculosis, to Dr. Arrillaga for studies on heart diseases, to Dr. Artundo for studies on metabolism in suprarenalectomized animals, and to Dr. Balado for studies on the innervation and pharmacodynamics of the iris. Drs. Sara Satanowski and J. Valls have been appointed assistant professors of orthopedics at the University of Buenos Aires, and Drs. J. Tobías and J. Beretervide assistant professors of clinical medicine.

Foreign Visitors

Dr. Florestán Aguilar came to Buenos Aires from Madrid to invite the government of Argentina to build a pavilion in the Universitary City in Madrid, during its world fair. The members of the Faculty of Medicine and of the Academy of Medicine gave him a hearty reception. Dr. Aguilar delivered two important lectures, one on the points related with the Universitary City, and the other on the teaching of odontology. It is said that Prof. G. Marinesco will come to Buenos Aires to deliver some lectures next year.

Foods with Gluten as a Base

A company has been organized in Buenos Aires to prepare vermicelli, bread and other foods with gluten as a base. The stockholders and the governing board are physicians. Professor Escudero delivered a public lecture in which he demonstrated that products with gluten as a base have variable and high amounts of starch. He disapproved the use of such products, and he affirmed that these products do not meet any of the requirements of the modern diet of diabetic patients.

National Department of Hygiene

Dr. Antonio Agudo Avila, after returning from a trip to Spain, France, Italy, Germany and England, resumed the duties of president of the national department of hygiene. All sanitary services at present under the direction of several hygiene branches will be under the direction of the central office, which he now directs.

ITALY

(From Our Regular Correspondent)

Rome, March 15, 1930.

Decline of Italian Birth Rate

According to the reports of the Istituto centrale di statistica, the number of births in Italy in 1929 was 1,035,866, or 32,700 less than the preceding year. The birth rate, which in 1928 was 26.08 per thousand of population, dropped in 1929 to 25.09. The number of deaths in 1928 was 638,818, and in 1929, 660,609, an increase of 21,791. Hence, the mortality rose from 15.59 to 15.98.

The excess of births over deaths was 357,257 in 1929, which signified a decrease of 54,491, as compared with 1928.

Graduate Instruction

At the instance of the Opera pro maternita e infanzia, a special course for physicians has been provided in addition to the course in puericulture that was organized some time ago. The purpose of the course will be to prepare those enrolled to combat, more particularly in the country, all the causes that disturb the normal development of pregnancy, birth and the puerperium, which contribute in no small degree to the mortality among the rural population, both as to the mother and to the child. These physicians, instead of being regarded as specialists in obstetrics, will be considered as propagandists of prenatal hygiene. The course will comprise a period of four months, and will be given in Rome under the direction of Prof. Cesare Micheli.

At the University of Bologna, a special course in applied anthropology has been created, which is intended to furnish specialists for the evaluation of the physical development of school children, athletes, followers of sports and soldiers. This course is associated with a course in anthropometry for medical officers of the army, the navy and the aviation corps, which was recently organized at the Scuola di sanità militare in Florence.

The University of Bologna will also give a postgraduate course in hygiene, intended for sanitary officers and under the direction of Prof. Donato Ottolenghi.

Investigation of Unethical Practitioners

During the year 1929, the bureau of health of Rome has exercised a careful control over the sanitary professions for the purpose of preventing abuse and fraud.

In medicine and surgery, the control has been exercised not only over suspected unethical practitioners but also over ambulatoriums, especially those annexed to pharmacies. To prevent abuses in dentistry, which are so common, an official list of regularly authorized dental offices has been prepared. The number listed in the city of Rome is 108. Seventy-one persons were charged before the judicial authorities with misdemeanors, twenty-one for the fraudulent sale of medicines, three for unethical practice of minor obstetrics, and thirteen for having practiced pharmacy in an unethical manner. Further, 101 persons were investigated on grounds of suspicion, among whom were fifteen pharmacists, three obstetricians and sixty-one nurses. Seven seizures of medicinal specialties and vaccines were made.

Opening of Large Hospital in Rome

A large new hospital, the Ospedale del Littorio, was recently opened in Rome. It has 1,000 beds, which can be increased to 1,500 in case of necessity, and is built according to the most modern conceptions of hospital construction. The four pavilions are from three to four stories high and are arranged in four columns. Each pavilion is supplied with complete equipment, including laboratory service, so as to constitute in itself a separate hospital. The movement of patients and of material is chiefly in a vertical direction, which is accomplished by means of many passenger and freight elevators. Movement in a horizontal direction is effected by means of a special type of electric automobile along the passageways of the grounds. The hospital has its own plant for the pasteurization of milk, with an hourly capacity of about 1,000 liters. The departments of minor and of major first aid are separate. The department of major first aid has an operating room and a roentgenologic service, and here are sent such cases as are in need of important interventions. The hydrotherapeutic department is particularly well equipped, being supplied with water by a tower with reservoirs that contain 1,700,000 cubic meters of water. The electrotherapeutic department also is well organized, being provided with 2,000 horse power, in addition to batteries of accumulators ready to enter automatically into service in case of interruption of the current. The hospital cost about 40,000,000 lire ($2,100,000).

Free Medical Aid in the Drainage Areas

To intensify the antimalaria crusade in the regions that are being subjected to drainage and reclamation, an agreement was recently entered into by the ministry of the interior, the Italian Red Cross Society, and the Opera nazionale dei combattenti (the Italian legion), to which have been entrusted the areas to be drained. The agreement concerns the medical aid and the prevention of malaria in the population of the regions in which the drainage operations are being carried on. This service will be performed by selected physicians of the Red Cross Society, acting in a permanent or a temporary capacity, depending on the needs of the situation, and aided by nurses and other personnel that the Opera nazionale dei combattenti will furnish. The aid will be given gratuitously and will be under the supervision of the general management of the public health service.

Delegates to International Congress of Microbiology

At the first International Congress of Microbiology, to be held in Paris in July, Italy will be represented by delegates who will present official papers at the three sections of the congress. At the section on medical and veterinary microbiology, Professor Vernoni, general pathologist of the University of Rome, will speak on "Undulant Fever in Relation to Abortion in Cattle," and Professor Sanarelli, senator and hygienist of the University of Rome, will discuss the pathogenesis of cholera. At the section on serology and immunity, Professor Belfanti of Milan will speak on "Lipoids in Relation to Immunity," while Professor Lattes will consider "Blood Groups." At the section on botany and parasitology, Professor Carbone will discuss "The Immunity of Plants."

Meeting of National Council of Research

The Consiglio nazionale delle ricerche held a plenary assembly at the close of the first year of its existence. Senator Marconi, who presided, delivered an address in which he set forth the work of the council. Thus far, little more has been done than to perfect the organization of the society. It is time now to take up the execution of the plans, assigning to the technical committees their work and the necessary means. In the meantime, the Comitato talassografico, which has for its purpose the physical, chemical and biologic study of Italian seas, has come under the control of the council. A biologic institute is already in full operation at Messina, and a similar institute will soon begin its work at Rovigno, where it will have the cooperation of Germanic scientists. The Istituto di biologia marina in Sardinia will be reorganized and improved. In the field of medicine, the *comitato* has organized systematic research work on the medicine of labor, rheumatism, cancer, tuberculosis and malaria.

Since the basis of scientific research is documentation, the *consiglio* has created a bibliographic institute that will collect all the literature that is published in Italy and in foreign countries. With this purpose in view, it has established certain publications of a periodic nature.

Marriages

LEON A. GOLDSMITH to Miss Bertha Goodman, both of Portland, Ore., February 20.

ERNEST B. PARMELEE, Butte, Mont., to Miss Evelyn Linley of Milwaukee, February 12.

JOSEPH C. DEVINE to Miss Helen Gruenheck, both of Fond du Lac, Wis., January 25.

MAXWELL C. BRANDSTEIN, Brooklyn, to Miss Elsa H. Blum of Baltimore, recently.

HAROLD F. BEGLINGER, Redgranite, Wis., to Miss Louise Green, January 18.

Deaths

David Sturges Fairchild, Sr. ⊕ Clinton, Iowa; Albany (N. Y.) Medical College, 1868; member of the House of Delegates of the American Medical Association, 1904, 1909, 1910-1911, third vice president in 1906 and first vice president in 1914; member and past president of the Western Surgical Association; past president and formerly chairman of the section on surgery and the committee on medicolegal defense of the Iowa State Medical Association; past president of the American Association of Railway Surgeons; member of the American College of Surgeons; formerly dean and professor of surgery at Drake University College of Medicine; on the staff of the Mercy Hospital; served as editor of the *Journal of the Iowa State Medical Society* for seventeen years, resigning in 1928; aged 82; died, March 22, of thrombosis.

James Nephew West ⊕ New York; Bellevue Hospital Medical College, New York, 1891; for many years professor of gynecology, New York Post-Graduate Medical School; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the American College of Surgeons; president of the Physicians' Mutual Aid Association; on the staffs of St. Mark's Hospital, New York, and the Vassar Brothers Hospital, Poughkeepsie; aged 63; died, March 30, of coronary thrombosis and cardiac insufficiency.

Carroll Everett Edson ⊕ Denver; Harvard University Medical School, Boston, 1892; professor of therapeutics, University of Denver, 1897-1906, and professor of the theory and practice of medicine, University of Colorado, 1906-1910; veteran of the Spanish-American War; member and past president of the American Climatological and Clinical Association; formerly assistant editor of the *Boston Medical and Surgical Journal*; aged 63; died, January 18, of bronchopneumonia and cerebral embolus.

St. Cloud Cooper ⊕ Fort Smith, Ark.; Missouri Medical College, St. Louis, 1882; past president of the Arkansas Medical Society and the Sebastian County Medical Society; member of the American College of Surgeons; formerly member of the board of health; on the staffs of St. Edward's Mercy Hospital and the Sparks' Memorial Hospital; aged 68; died, March 29, of heart disease.

Henry Dawson Allen, Milledgeville, Ga.; Atlanta Medical College, 1879; member of the Medical Association of Georgia; physician in charge and owner of the Allen's Invalid Home; member of the American Psychiatric Association; aged 74; died, March 22, of cerebral hemorrhage.

Robert Fulford Ruttan, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1884; emeritus professor and formerly director of the department of chemistry at his alma mater and dean of the faculty of graduate studies; aged 73; died, February 19.

Charles Percival Johns, Thornhill, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1900; L.R.C.P., London and M.R.C.S., England, 1902; physician to the Jail Farm, Langstaff; aged 54; died, January 27, at the Wellesley Hospital, Toronto.

George K. Mason, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1890; medical superintendent of the Pulaski County Hospital and formerly superintendent of the Confederate Home; aged 62; died, March 14, of heart disease.

John B. Ewing, Chicago; Detroit College of Medicine and Surgery, 1886; member of the Illinois State Medical Society; aged 73; died, March 26, of myocarditis and from the effects of smoke inhaled when the store below his apartment caught fire.

John Eliot Shrady, New York; Medical Department of Columbia College, New York, 1892; member of the Medical Society of the State of New York; on the staff of St. Francis Hospital; aged 63; died suddenly, March 19, of heart disease.

Hugh Munro Miller, South Bend, Ind.; Northwestern University Medical School, Chicago, 1902; served during the World War; formerly medical director of the Epworth Hospital; aged 51; died, March 14, in Chicago, of heart disease.

Olyn Floyd Parkes, Louisville, Miss.; Jefferson Medical College of Philadelphia, 1919; member of the Mississippi State Medical Association; aged 34; died, March 6, at the Baptist Memorial Hospital, Memphis, Tenn., of pneumonia.

Orton Irwin Grain, Winnipeg, Man., Canada; Victoria University Medical Department, Coburg, Ont., 1886; formerly member of the Manitoba legislature and mayor of the town of Selkirk; aged 66; died, February 2, of heart disease.

Walter Watkins Davis, Brea, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1903; member of the California Medical Association; served during the World War; aged 50; died, February 1, of pneumonia.

Jesse Carroll Bennett, Grapevine, Texas; Fort Worth School of Medicine, 1900; member of the State Medical Association of Texas; aged 51; died, March 9, at the Harris Sanitarium, Fort Worth, of hypertension.

William Lewis Werner, Akron, Ohio; Eclectic Medical Institute, Cincinnati, 1901; member of the Ohio State Medical Association; aged 61; on the staff of the People's Hospital, where he died, March 9, of septicemia.

William James Engles, Smyrna, Tenn.; Medical Department, University of Tennessee, Nashville, 1885; member of the Tennessee State Medical Association; aged 66; died, March 22, of heart disease.

Alvin Herbert Whitney, Chicago; Illinois Medical College, Chicago, 1904; member of the Illinois State Medical Society; aged 51; died, March 26, of pulmonary embolism and postoperative hernia.

Richard Asbery Walker ⊕ St. Louis; Barnes Medical College, St. Louis, 1905; aged 55; died, March 12, at the Missouri Baptist Hospital following an operation for carcinoma.

George F. Murphy, Stratford, Wis.; Milwaukee Medical College, 1912; member of the State Medical Society of Wisconsin; aged 43; died, February 15, in a hospital at Marshfield.

Charles Eugene Rogers, Covington, Va.; Bellevue Hospital Medical College, New York, 1886; aged 65; died, February 11, in Chicago, of pulmonary edema, following myocarditis.

Edward P. North, Holt, Mich.; Rush Medical College, Chicago, 1882; member of the Michigan State Medical Society; aged 68; died, February 21, of chronic myocarditis.

Frank Louis Mueller, Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 64; died, March 20, at the Elgin (Ill.) State Hospital, of cerebral arteriosclerosis.

A. Emil Kjellberg, Chicago; Hahnemann Medical College and Hospital, Chicago, 1890; aged 83; died, March 26, of coronary thrombosis and arteriosclerosis.

Charles L. Hamilton ⊕ Dwight, Ill.; Missouri Medical College, St. Louis, 1880; aged 70; died, March 16, at St. James Hospital, Pontiac, of pernicious anemia.

Louis Minor Taylor, Fredericksburg, Iowa; Chicago Homeopathic Medical College, 1884; formerly a druggist; aged 67; died, March 18, of heart disease.

Anthony M. Ray, Boyds, Md.; University of Virginia Department of Medicine, Charlottesville, 1895; aged 62; died, March 14, of heart disease.

Charles Alexander Moore ⊕ East Alton, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; aged 55; died, March 13, of heart disease.

Martin Kostelny ⊕ Chicago; Chicago Medical School, 1927; aged 28; died, April 2, of acute dilatation of the heart, following myocarditis.

Edward G. McCormick, Waynesburg, Ohio; Columbus Medical College, 1879; aged 73; died, March 23, of heart disease.

Hiram Lewis Cosby, Pekin, Ill.; Rush Medical College, Chicago, 1889; aged 63; died, March 28, of a self inflicted bullet wound.

Keylon H. Williams, Cope, Ind.; Medical College of Indiana, Indianapolis, 1887; aged 69; died, March 20, of gastric ulcer.

Bureau of Investigation

VAN ARD SANATORIUM

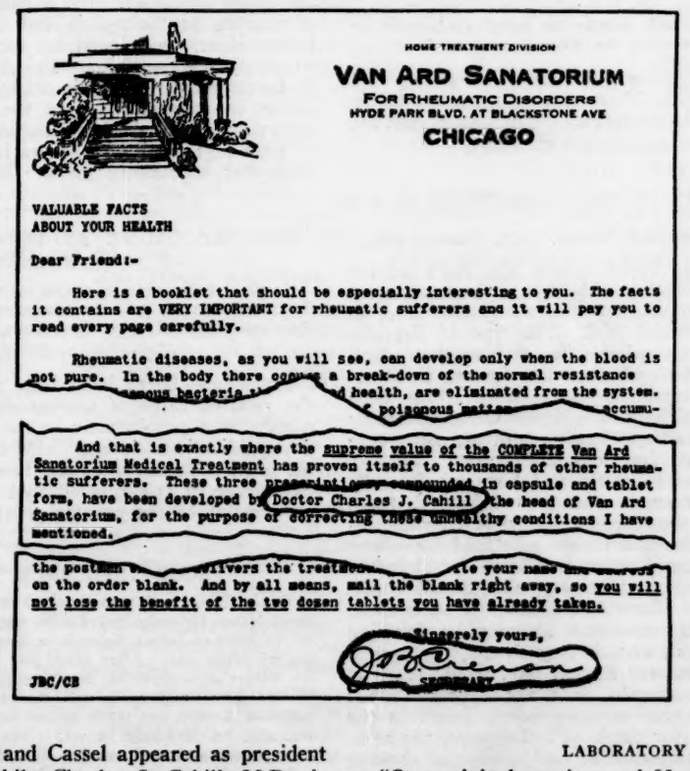
A Dangerous Piece of Mail-Order "Rheumatism Cure" Quackery

The Van Ard Sanatorium, Inc., does a quack rheumatism-cure business from an old brick residence on the south side of Chicago. It is an Illinois corporation with an authorized capital of $10,000. Its officers are listed as J. B. Creevy, President; H. L. Cassel, Secretary.

Cassel and Creevy are brothers-in-law. They are the same individuals who are, or were, connected with the "Cass Treatment for Rheumatism," and both of them are said to have been previously connected with one of the smaller Chicago mail-order houses. Creevy, prior to that, seems to have been in the tailoring business. The so-called Cass treatment was originally exploited by the Cass Laboratories, which, of course, were not laboratories. Its letters were signed "Harvey L. Cass, President"; there never was such a person, H. L. Cassel being the individual in the flesh.

In 1926 the postal authorities were about to issue a fraud order against the Cass Laboratories, when Cassel submitted an affidavit, swearing that the business conducted under the name Cass Laboratories had been discontinued and abandoned and would not be resumed. The facts were that, for a month before Cassel made this sworn statement, the name Cass Laboratories had been abandoned, but the same quacks were doing the same business, from the same address, under the name, "H. L. Cass Corporation"!

It was in February, 1927, that Cassel submitted this affidavit; in January, 1927, the Van Ard Sanatorium was incorporated. At the time of incorporation the officers were listed as follows: C. J. Cahill, president; J. A. Carroll, secretary.



HOME TREATMENT DIVISION

VAN ARD SANATORIUM

FOR RHEUMATIC DISORDERS
HYDE PARK BLVD. AT BLACKSTONE AVE

CHICAGO

VALUABLE FACTS
ABOUT YOUR HEALTH

Dear Friend:-

Here is a booklet that should be especially interesting to you. The facts it contains are VERY IMPORTANT for rheumatic sufferers and it will pay you to read every page carefully.

Rheumatic diseases, as you will see, can develop only when the blood is not pure. In the body there comes a break-down of the normal resistance ... health, are eliminated from the system. ... poisonous matter ... accumu-

And that is exactly where the supreme value of the COMPLETE Van Ard Sanatorium Medical Treatment has proven itself to thousands of other rheumatic sufferers. These three preparations, compounded in capsule and tablet form, have been developed by Doctor Charles J. Cahill, the head of Van Ard Sanatorium, for the purpose of correcting these unhealthy conditions I have mentioned.

... the postman ... delivers the treatment ... to your name ... on the order blank. And by all means, mail the blank right away, so you will not lose the benefit of the two dozen tablets you have already taken.

Sincerely yours,

JBC/CB

Later, the names of Creevy and Cassel appeared as president and secretary, respectively, while Charles J. Cahill, M.D., is now listed as "Medical Superintendent."

Charles Joseph Cahill, according to the records of the American Medical Association, was born in Massachusetts in 1875 and holds a diploma from the Kansas Medical College, Topeka, dated 1897. Dr. Cahill is licensed to practice in Kansas, Texas, Missouri and Illinois, getting the Illinois license in 1927, about the time that he came to that state in order to engage in the Van Ard quackery. Dr. Cahill seems to have started practice in Lawrence, Kansas, in 1900, and his name appears in the medical directories for 1900 and 1902 under that place. The directory for 1904 does not carry his name; in 1906 he was at Scott, Kansas; in 1909 at Rozel, Kansas; in 1912 and 1914 at Tecumseh, Kansas; from 1916 to 1918 at Topeka, Kansas; in 1921 he was in Kansas City, Mo.; in 1923 and 1925 he was at Emmett, Kansas. Since 1925 Dr. Cahill's name has appeared in the "Address Unknown" file of the American Medical Association, until he was in Chicago, connected with the Van Ard fake. The impression is given in the Van Ard advertising that Charles J. Cahill has special knowledge of the treatment of rheumatism. Needless to say, Cahill's name is unknown to scientific medicine. For years he was an obscure practitioner, until he came to Chicago and, overnight, blossomed out as a "specialist" in the treatment of rheumatism!

Just as in the Cass Laboratories' fake the letters were signed "Harvey L. Cass" (a person who didn't exist), so in the Van Ard Sanatorium quackery most of the letters are signed "J. B. Crenon, Secretary." And just as "Harvey L. Cass" was really Harvey L. Cassel, so, doubtless, "J. B. Crenon" is Joseph B. Creevy!

Incidentally, the same individuals—Creevy and Cassel—who exploit "rheumatism cures" under the names "Cass Laboratories," "H. L. Cass Corporation," "Van Ard Sanatorium" and "Van Ard Institute," were also connected with the "Western Medical Association," later called the "Western Medical Corporation," and the "Vernon Laboratories," both of which sell a mail-order "epilepsy cure."

In the latter weeks of 1929 THE JOURNAL received reports from California of three deaths in which the principal autopsy finding was an extreme degree of atrophy of the liver (acute or subacute yellow atrophy). In each of these three cases (all women), the patient had suffered with symptoms of chronic arthritis. The physician who reported the cases stated that two of the women had been taking the Van Ard "treatment"; the third had been taking the Cass "treatment."

In the Cass "treatment," as was shown in THE JOURNAL'S article on this fake (published January 15, 1927: reprints available), the essential drugs were aspirin (acetylsalicylic acid) and cinchophen. In view of the deaths reported from California, some qualitative tests were made of the specimens sent in to THE JOURNAL by the pathologist who reported the cases, and the A. M. A. Chemical Laboratory found that cinchophen was the essential drug in the treatment. At the same time the Bureau of Investigation secured one complete original "treatment" from the Van Ard Sanatorium. This, also, was submitted to the A. M. A. Chemical Laboratory for examination. The chemists' report follows:

LABORATORY REPORT

"One original specimen of Van Ard Sanatorium Treatment (Van Ard Sanatorium, Chicago) was submitted to the A. M. A. Chemical Laboratory for examination. The 'treatment' came in a large box containing four smaller boxes labeled, 'A,' 'B. No. 1,' 'B. No. 2' and 'C.'

"Box A.—This bore the directions: 'Take TWO tablets *before* each Meal and at Bedtime.' The box contained 97 mottled brown tablets averaging 0.45 Gm. (6.9 grains) in weight. Tests indicated that these tablets were composed essentially of acetylsalicylic acid (aspirin). Iron was found in the ash.

"Box B. No. 1.—This was labeled: 'Take ONE with One Prescription "B. No. 2" *after* each Meal.' The box contained 36 light yellow tablets averaging 0.48 Gm. (7.4 grains) in weight. Tests indicated that these tablets were composed essentially of cinchophen.

"Box B. No. 2.—This was labeled: 'Take ONE with One Prescription "B. No. 1" *after* each Meal.' The box contained 36 dirty white capsules, the contents of which averaged 0.5316 Gm. (8.2 grains) in weight. Tests indicated that a relatively large proportion of this material was sodium bicarbonate. In addition, there appeared to be present a substance resembling 'exhausted' ginger and another substance, apparently protein material.

"Box C. This carried the directions: 'Take ONE, TWO or THREE at Night as necessary to move Bowels freely.' The box

contained 24 red capsules containing a yellow powder, resembling yellow phenolphthalein and aloes. It also contained an unidentified salty material.

"From the above, it may be stated that this 'treatment' consists essentially of acetylsalicylic acid (aspirin), cinchophen, sodium bicarbonate (baking soda) and a laxative."

It is obvious that the Van Ard and Cass "treatments" are for all practical purposes identical—namely, aspirin, cinchophen and baking soda with a laxative. The only material difference is in the laxative employed. In the case of the Cass quackery it was epsom salt, flavored, while in the Van Ard case it seems to be phenolphthalein and aloes.

While the Van Ard outfit calls itself a "Sanatorium" in its advertising, it appears in the Chicago telephone directory as the "Van Ard Institute," the reason being that whatever treatments they may give—if, indeed, they give any—at the Chicago address are ambulatory in character. No patients—or victims—are housed in the so-called Sanatorium.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSSIBILITY OF INFECTION WITH UNDULANT FEVER FROM HOGS FED ON MILK FROM INFECTED COWS

To the Editor:—Are hogs fit for food after having been fed the milk from cows that have undulant fever?

MARCUS T. SMITH, M.D., Conway, Ark.

ANSWER.—There appears to be no reason why hogs fed the milk of cows affected with infectious abortion, the causal agent of which, *Brucella abortus*, sometimes causes undulant fever in man, should not be fit for human food. The type of *Brucella abortus* that affects cattle is somewhat different from that which affects hogs, and it is doubtful whether the former is transmissible to hogs through natural exposure, since it has been shown by experiments in which these animals were repeatedly fed infectious material from cattle and cultures of the cattle type of the micro-organisms that they did not become infected. Moreover, the disease caused in cattle and hogs by *Brucella abortus* is unlike undulant fever of man, for which both types of this micro-organism are sometimes responsible. Symptoms of illness, excepting abortion, are rarely exhibited by either species of animal, and the causal agent is seldom found in the animal outside the genital organs, mammary glands and lymph glands associated with them. There would therefore seem to be little risk of hogs contracting infectious abortion by drinking the milk of infected cows, and, even if they should, the danger that their flesh would be unfit for human food would seem to be improbable, because the disease does not appear to act systemically and the micro-organisms are rarely found in the portion of the carcass used for food. Furthermore, the temperature to which meat is subjected in the process of cooking would kill any *Brucella abortus* infection that might possibly be present in it and thus reduce the danger to the vanishing point.

ALCOHOL TEST MEAL

To the Editor:—Can you tell me what an alcohol test meal consists of?

CHARLES W. ROBERTSON, M.D., Amherst, Mass.

ANSWER.—According to Cheney, in *California and Western Medicine*, April, 1928, the technic of this test is as follows: Early in the morning, after twelve hours' fasting, a Rehfuss tube is passed and all the stomach contents are removed. The meal, consisting of 100 cc. of 7 per cent alcohol, is then injected into the stomach through the tube and samples are withdrawn at intervals of half an hour up to one and one-half hours after the meal. The advantages of this method are: 1. The specimens are clear, and small amounts of blood, bile and mucus can be readily recognized. 2. There is no stoppage of the tube by bits of food. 3. The microscopic examination of the sediment and tests for blood and lactic acid are readily carried out. 4. It is not necessary to filter the contents, to read the acid determinations with Topfer's reagent and with phenolphthalein. In his conclusions, Cheney says that a meal of 50 cc. of 7 per cent alcohol followed by the withdrawal of four samples at subsequent fifteen minute intervals will give as adequate information as may be obtained by a longer procedure. The acid curves obtained with this method of gastric analysis are said to be comparable to those obtained with other types of gastric stimulants. The method has received little attention in this country and abroad as a standard stimulus in fractional gastric analysis. The Ewald meal or cereal gruels are usually employed.

TREATMENT OF CHRONIC MYOSITIS OR SCLERODERMA

To the Editor:—Please outline for me the treatment of a case of chronic myositis in a woman of 60. The lower ends of the posterior crural muscles are involved, beginning just above the internal malleolus and extending to the junction of the middle and the upper third of the leg. The disease is of two years' duration. The skin above is unbroken but is discolored brown, and is thick and hard; the subcutaneous tissue is soft; the muscle appears to be gone, leaving a gap between the upper and the lower end from 4 to 6 inches wide. The legs swell rapidly when the patient gets out of bed for a few hours. The patient was treated by another physician for a year and a half before I saw her. Antisyphilitic treatment was first tried. About six injections of neoarsphenamine of 0.6 Gm. each were given over a six weeks period, but no improvement was noted. The Wassermann test was not done until after treatment and was negative. Please omit name.

M.D., Pennsylvania.

ANSWER.—It is difficult to offer any constructive advice with the data at hand. It is probably not a myositis. The brown, thick, hard skin suggests a scleroderma. An actual gap between the upper and lower ends of the muscle would occur in a case of rupture of the muscle but does not account for the thick, brown skin. One would not expect an atrophy of nerve origin to have just these limits. The possibility of a scleroderma might be investigated. There is enough evidence that some such case occurs in undersecretion of the thyroid to justify obtaining a determination of the basal metabolic rate, or a therapeutic test. If both legs swell, the edema is probably on some other basis than that accounting for the lesion described.

MERCUROCHROME AS PREVENTIVE OF OPHTHALMIA NEONATORUM

To the Editor:—Please advise me as to the value of mercurochrome in the prevention of ophthalmia neonatorum. Also relative merits of this agent as compared with silver salts as a prophylactic in the new-born.

B. B. MCGEE, M.D., Las Cruces, N. M.

ANSWER.—There have been no comparative statistics as to the relative value of mercurochrome-220 soluble and of silver nitrate as a prophylactic in the new-born nor have there been any publications dealing with the value of mercurochrome in the prevention of ophthalmia neonatorum. Judging from clinical experience, it is estimated that silver nitrate is probably safer on account of the greater penetration of the epithelial tissues.

VAGUS INFLUENCE AND HEART BLOCK

To the Editor:—A man about 60 years of age, who had an acknowledged heart lesion for some years with varying degrees of decompensation, was in the habit of taking digitalis in dosages of 2 grains one day and 1 grain the following day. After about two years of this practice independent of the advice of a physician he presented himself for examination. An electrocardiogram was made and the rate of 100 with no indications of a digitalis T-wave was taken as an indication for the further exhibition of digitalis. Accordingly he was given digitalis, 6 grains a day for three days, when the rate dropped to 70 and the digitalis was reduced to 2 grains a day on the assumption that he was digitalized. Two days later, on being visited in his home, he was found seated in a chair with the body well flexed over the knees. On being asked for an explanation for the position, he explained that it was the only comfortable position that he could assume and rest: that when he sat upright his heart seemed to stop or at least to run much slower. Examination of the heart at this time with the stethoscope to the chest revealed a rate of 40 in the upright position and 82 in the semiflexed position. There was no arrhythmia noted in either position. He was obviously dyspneic in the upright position. What is the explanation for the change in the rate? Make any other comments which might be of help or interest. Please omit name.

M.D., North Carolina.

ANSWER.—Apparently the patient has a 2 to 1 heart block on assuming an erect sitting posture. It is to be assumed that in the erect posture there is a stimulation of either the thoracic or the abdominal vagus, which is decreased on flexion, or sympathetic stimulation in the flexed position. It would seem more probable that there is a decreased stimulation of the abdominal vagus in the flexed position, with the relaxed abdominal walls. A gentle pat with the hand over the epigastrium, or slight pressure, is sufficient to cause demonstrable vagus stimulation in some persons. It is probable here that the digitalis has lowered the vagus threshold and permits vagus overaction.

After the question was brought up, electrocardiograph tracings were made on eleven normal persons in the erect and in the flexed sitting posture. There was an increased heart rate in the

flexed position in five. In two cases after a full meal the rate increased nine beats per minute. There was no change in three, and in three others the rate was slower in the erect sitting posture, but in each case there was a difference only of three beats per minute.

A very little difference in vagus influence could readily cause every beat to come through in a 2 to 1 block.

DETERMINATION OF LIPOIDS

To the Editor:—Can you provide our laboratory with definite references or information regarding the recognition of double refractile lipoid bodies in the urine of suspected cases of nephrosis? We would appreciate any suggestion you may offer for establishing the identity of these lipoids. We have secured a light polarizer to fit on a Leitz microscope. With our microscope, we can see the same sudan III staining fat globules that we see with the polarizer. Can you explain to us any distinct advantage of using a polarizer in preference to an ordinary condenser?

HARRIET BENSON, Santa Barbara, Calif.

ANSWER.—In a paper entitled "Occurrence of Lipoids in Urine and Their Diagnostic Importance" (*J. Lab. & Clin. Med.* **13**:542 [March] 1928) E. L. Miloslavish discusses the various pathologic conditions giving rise to the appearance of double refracting fat substances in urine. For the observation of the double refracting bodies a polarizing microscope with rotating polarizer is necessary. Leitz lists a special biologic polarizing microscope. It is possible that information of greater differential diagnostic value in nephrosis might be secured from the determination of the cholesterol and the change in the albumin-globulin ratio in the blood.

BISMUTH THERAPY NOT INDICATED IN NEURITIS

To the Editor:—Is there any justification for the use of sodium bismuth tartrate, 1.5 per cent solution (2 cc. injected intramuscularly), in treating a patient for neuritis of nonsyphilitic origin? If so, will you kindly give me the available references. Kindly omit my name.

M.D., District of Columbia.

ANSWER.—There is no justification for the use of sodium bismuth tartrate in the treatment of neuritis of nonsyphilitic origin. Bismuth therapy, of course, is employed in the treatment of various forms of syphilis along with other antisyphilitic drugs.

VALUE OF GASTRIC ANALYSIS

To the Editor:—Would you please let me know something of the present status of gastric content analysis, especially as regards its use in diagnosis of cancer and ulcer of the stomach. I understand it fell somewhat into disrepute a few years ago, and I should like to know how generally it is now used in large hospitals and clinics; also, which type—the fractional examination or the single specimen examination. Please use initials only.

M.D., Vermont.

ANSWER.—A gastric analysis, carefully carried out, has never been in disrepute. The criticism has been of tests carried out in a perfunctory manner and not examined by a competent observer. A single test meal is generally used in the hospitals and clinics. In most places a motor meal is also given which is removed in seven hours, and this is followed by an Ewald test. If the test breakfast does not show any free hydrochloric acid, a fractional examination is made; this is of decided value in determining the question of a true achylia, on the one hand, or an increased amount of free acid at some phase of digestion which would not be evident in a single test.

OPERATIVE TREATMENT OF SACRO-ILIAC DISEASE

To the Editor:—I have been taking care of a young woman for the last two years who has what might at first glance be taken for sacro-iliac disease. She has considerable pain over the left sacro-iliac joint and down her left leg on the lateral surface around the trochanter. In the morning the two legs seem equal in length and there is but little pain, but in about an hour the pain starts and becomes progressively worse and she has trouble in getting her left heel on the floor. Her back is quite lordotic and her abdomen somewhat prominent. The pelvic organs are normal and she is normal throughout. The teeth are good. The tonsils are out completely, having been removed two years ago. She cannot flex her thigh on her abdomen because, it seems to me, of muscle rigidity. There is no wasting of the leg muscles and sensation seems normal. There is no adduction, but abduction is very painful. What results might be expected from operative fixation of the left sacro-iliac joint? Please do not publish my name.

M.D., South Dakota.

ANSWER.—It would be advisable to have roentgenograms of the lower part of the back and both hip joints. These films of the spine should be made in the anteroposterior and lateral projections in order to rule out the condition of spondylolisthesis or slipping of the vertebrae. This slipping may be anterior or posterior, but in this case it is more likely anterior.

The brief history sounds much as if a spasmodic sciatic scoliosis were present. Neurologic examination should be made in order to rule out cord tumor. One should reserve operative fixation of the left sacro-iliac joint in this case. It is undoubtedly a symptomatic sciatic neuralgia or "neuritis." If no further neurologic factors are found, the patient should be put to bed with traction by means of a pelvic belt to which are fastened two straps; these are attached to ropes which go over pulleys and have weights suspended. In addition, head traction should be employed by means of weights and pulley.

Physical therapy, that is, radiant heat, baking, massage and diathermy, may be of value and should be tried. Measures may be taken to reduce the lordosis by medical gymnastics. If any one of these agents increases the discomfort, it should be discontinued temporarily.

A sciatic stretching may be necessary. It may be advisable in this case to resort to caudal epidural injections of procaine hydrochloride.

VASECTOMY AND STERILITY

To the Editor:—Is vasectomy to be recommended as an ideal means of producing sterility? What likelihood is there of impotence resulting from this operation? Would this operation produce any shortening of the sexual life or any variation or diminution in desires? Please omit name.

M.D., Massachusetts.

ANSWER.—Vasectomy produces certain sterility some time after the operation. As a rule, libido and sexual acts are not interfered with. Some authors assert that vasectomy is followed by an increase in sexual activity.

TREATMENT OF CASE OF SYPHILIS WITH IDIOSYNCRASY TO ARSPHENAMINE

To the Editor:—Will you kindly outline for me the best treatment for a case of primary syphilis in a woman who has an idiosyncrasy to arsphenamine and neoarsphenamine.

W. G. WILSON, JR., M.D., Smithfield, N. C.

ANSWER.—If the patient has a true idiosyncrasy to all of the arsphenamine group, dependence will have to be placed on bismuth and mercury therapy. Before abandoning drugs of such great value as the arsenicals, it would be well to make certain that the patient cannot tolerate them under any conditions. To this end one may begin with an intravenous injection of a small dose of neoarsphenamine, such as 0.15 Gm., given on an empty stomach and food withheld for several hours afterward. As a substitute, sulpharsphenamine or bismarsen in doses of 0.1 Gm. may be given intramuscularly every five to seven days, the dose being cautiously increased.

Assuming that none of the arsenicals can be tolerated, any one of the accepted bismuth preparations may be given in courses of twelve weekly intramuscular injections, followed by a course of forty mercury inunctions or twelve intramuscular injections of one of the insoluble mercurials. At least three such courses should be given and, in the rest periods between courses, potassium iodide may be given by mouth, although there is considerable doubt about the value of this drug in early syphilis. The Wassermann reaction should be used as a guide to the treatment.

SALT IN POTABLE WATERS

To the Editor:—I am interested in getting some information as soon as possible on the question of water pollution by salt and oil. I am interested to know what percentage of salt is found in streams that are polluted, what their harmful reactions are and such information.

F. L. FLACK, M.D., Tulsa, Okla.

ANSWER.—The amount of salt (sodium chloride) present in stream waters has interested sanitary chemists for years. Before bacteriologic methods were developed satisfactorily, chemical analysis was the sole means of determining the potability of a drinking water. The chemist looked for the presence in water of abnormal amounts of substances found in sewage and used these abnormal amounts as an index of sewage pollution. One of these chemical substances is sodium chloride. The amount of salt present is generally expressed in parts per million of chlorine. More properly speaking, this is the chloride ion. The salt in sewage comes largely from the urine but may also be found in kitchen wastes. Where the chloride is excessively high, some explanation must be forthcoming. Whether or not the amount is excessive is determined for surface waters from "normal chlorine" maps prepared from a large number of analyses of uncontaminated waters in a particular region. For deep well waters, standards are difficult to fix. The "normal

chlorine" will vary from less than 1 part per million to about 7. It is unlikely that the amount of salt present in a stream water would have any effect on the use of that water for drinking purposes provided it is otherwise safe. The value of an analysis for chloride is merely to use it as an indicator of pollution, but it should be remembered that this analysis alone does not give sufficient evidence.

ERB'S PARALYSIS AND TORTICOLLIS

To the Editor:—Will you be kind enough to outline a standard line of care for an infant who suffers from Erb's paralysis and a congenital torticollis. Both were undoubtedly caused by pressure used in freeing the right shoulder at the time of his birth. Kindly omit name.

M.D., Missouri.

ANSWER.—It is generally believed that Erb's paralyses and congenital torticollis should not be treated until after about six months. The therapy is then entirely orthopedic and consists in proper application of splints and casts, directions for which may be found in any standard work on orthopedics.

EFFECTS OF CASTRATION

To the Editor:—I have a patient who must undergo castration for therapeutic reasons. If he recovers his full health, what must I anticipate for him in the way of mental or physical deterioration? He is 45 years of age and is at present exceptionally well balanced mentally. Please omit name and address.

M.D., New Mexico.

ANSWER.—The patient will probably undergo no physical deterioration, and mental troubles need not be expected as a result of the operation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Regular Board. Little Rock, May 13-14, 1930. Sec., Dr. S. J. Albright, Searcy, Ark. Homeopathic Board. Little Rock, May 13, 1930. Sec., Dr. Allison Pringle, Eureka Springs, Ark. Eclectic Board. Little Rock, May 13, 1930. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith, Ark.

CONNECTICUT: New Haven, June 7, 1930. Basic Science. Chairman, Prof. C. M. Bakewell, Box 1895, Yale Station, New Haven, Conn.

IOWA: Iowa City, June 3-5, 1930. Dir., H. W. Grefe, Des Moines, Iowa.

NEBRASKA: Omaha, May 6-7, 1930. Basic Science. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEVADA: Carson City, May 5-7, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

WYOMING: Cheyenne, June 2, 1930. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne, Wyo.

ANOTHER WOULD-BE MEDICAL SCHOOL

An institution bearing the name of the Illinois College of Physicians and Surgeons is said to have been opened in a building formerly occupied by the Chicago Theological Seminary and later by a chiropractic institution. This new institution also, apparently, is a chiropractic affair since a letter head sent out bears the names of a president and a secretary who are said to be chiropractors. Another report states that a two year course was contemplated whereby chiropractors could be furnished medical degrees at a charge reported as $1,000 per student. As to teachers, subjects to be taught or other details, no announcement has been received. From the information already received, this institution is not eligible for recognition among medical schools.

Indiana Reciprocity Report

Dr. W. R. Davidson, secretary of the Board of Medical Registration and Examination of Indiana, reports 15 candidates licensed through reciprocity with other states throughout the year of 1929. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine		(1922)	New York
Chicago College of Medicine and Surgery	(1910)	(1911)	Illinois
Rush Medical College	(1900)	(1926)	(1929) Illinois
University of Illinois School of Medicine	(1925)	(1928)	Illinois
University of Kansas School of Medicine		(1927)	Kansas
University of Michigan Medical School		(1924)	Minnesota
Ohio State University College of Medicine		(1926)	Ohio
Temple University School of Medicine		(1925)	Penna.
University of Tennessee College of Medicine		(1893)	Ohio
Dalhousie University Faculty of Medicine		(1926)	Illinois
Leipzig University Faculty of Medicine		(1920)	Illinois

Book Notices

AN OUTLINE OF ENDOCRINOLOGY. By W. M. Crofton, B.A., M.D., Lecturer of Special Pathology, University College, Dublin. Second edition. Cloth. Price, $3 net. Pp. 163, with 53 illustrations. New York: William Wood & Company, 1929.

This book is brief and is clear in diction. Everything else that must be said about the volume is unfavorable. In fact, it is essentially uncritical propaganda for polyglandular therapy by mouth. The preface states that "time is steadily vindicating the effectiveness of the oral administration of endocrine products for therapeutic purposes." The general unreliability of the book is emphasized by the following quotations, picked at random in the several chapters: On page 19: "Pituitrin produces a marked diuresis." The contrary is the case, particularly in diabetes insipidus and in cases in which diuresis is produced by liquids by mouth. On page 35: "Adrenalin is very successful in the treatment of osteomalacia." And on the following page: "In Addison's disease, adrenalin is given by mouth every two hours." Further: "Adrenalin ought to be useful in a condition that results from overaction of the ovarian internal secretion. For instance, in menorrhagia and metrorrhagia it might be combined with testicular substance." On page 57: "Parathyroid extracts twice or three times a day are recommended as efficient in chronic infections." On page 63: "The thymus gland should always be used in rickets" and "testicular substance or ovarian or both should be extensively used in status lymphaticus, thymic asthma and myasthenia gravis." On page 73: "For the purpose of increasing lactation a combination of corpus luteum, mammary substance and placenta may be used. Such combinations are available commercially." On page 76: "Testicular substance (by mouth) is clearly one of the most powerful tonics we possess for both men and women." On page 84: "Spleen extract combined with liver and external ferments of the pancreas can be obtained commercially (Kinazyme) in the form of tablets; one to three of these can be given three times a day after food. I have found it of the greatest possible use as a routine for improving the nutrition of tuberculous patients." In the chapter on the pancreas and diabetes: "Insulin is not the only product which controls diabetes; . . . there are several products which have been on the market for several years which, given by mouth, will enable the majority of patients to metabolize sufficient glucose to keep them with a feeling of well being." On the following page occurs free advertising for Carnrick's Trypsinogen, Fairchild's Holadin and Pan Secretin Co. of the Harrower Laboratories as a treatment for diabetes.

These quotations suffice to indicate to the informed physician the general unreliability of the book. In the epilogue it is said that "every cell in the body is under the control of the nervous system, under the control of which it carries on its normal activities." As every informed reader knows, this is an open question, especially in relation of the endocrine glands with the exception of the suprarenal medulla and the production of epinephrine. The Dublin doctor appears to be promulgating all of these therapeutic vagaries or proved errors in all seriousness, but on page 71 there appears to be an indication of Irish wit when he tells us: "In prima donnas, in whom it is important to preserve the quality of the voice, the use of ovarian substance would be worth a trial." Books of this stripe reflect sadly on the credit of the endocrine practitioner of this generation.

DAS PROBLEM DER GEBURTENREGELUNG. Von Dr. J. H. Leunbach, Sekretär de Weltliga für Sexualreform. Mit einem Vorwort von Magnus Hirschfeld. Paper. Pp. 45. Copenhagen: Levin & Munksgaard, 1930.

This little book contains the two papers which Leunbach presented before the International Congress for Sexual Reform. The first was read in 1928; the subject was "Significance, Purpose and Technic of Birth Control." The second was read in 1929 and bears the title, "Interruption of Pregnancy and Sterilization in Denmark." The author is thoroughly conversant with his subjects and discusses the birth control situation not only in his own country but also in France, Germany, Russia,

the United States and other countries. He points out the importance of birth control and discusses various devices for preventing conception. He believes that thus far the occlusive pessary best fulfils the three requirements of a contraceptive: certainty, harmlessness and inexpensiveness. However, this pessary is not always easy to apply; hence an improved method should be sought. There is now an "International Medical Committee for the Scientific Investigation of Contraception" which has headquarters in London and which is cooperating with the scientific committee on contraception in Moscow. The author resents governmental interference concerning birth control because he believes that governmental regulations, whether positive or negative, prevent progress in racial hygiene. He considers sterilization the best and most important means of improving the hygiene of the race. The book should be read by all interested in birth control.

PEDIATRIC NURSING, INCLUDING THE NURSING CARE OF THE WELL INFANT AND CHILD. By Gladys Sellew, M.A., B.S., R.N., Assistant to the Dean, the Cook County Hospital School of Nursing. Second edition. Cloth. Price, $2.50. Pp. 513, with 50 illustrations. Philadelphia: W. B. Saunders Company, 1930.

This concise and practical treatise on pediatric nursing indicates the writer's practical experience in bedside as well as classroom instruction. It is well written and carefully edited and can be recommended as a safe manual for the student nurse.

LEHRBUCH DER SYSTEMATISCHEN ANATOMIE. BAND IV: NERVENSYSTEM UND SINNESORGANE. Von Professor Dr. Julius Tandler, Vorstand der I anatomischen Lehrkanzel, Wien. Paper. Price, 65 marks. Pp. 649, with 406 illustrations. Leipzig: F. C. W. Vogel, 1929.

This volume completes Tandler's "Lehrbuch der systematischen Anatomie." It deals with the nervous system and conforms in general character with the first three volumes. It is a textbook for students written by a professor who excels as a teacher. Professor Tandler says that

> who describes a region so that another may find his way about in it, even though he has not accurately stated the number of trees and the size of the stones, nevertheless gives real information and help. So I have tried in my book to present the anatomy of the human body in such a manner that the future physician may find his way about. I have tried to present anatomy in a manner as interesting and understandable as possible.

With the help of the publisher, Professor Tandler has succeeded admirably. The text is not exhaustive in the sense that it includes references to all the literature, but it does set forth in a manner characteristic of the author the anatomy of the nervous system in an unusually instructive and intelligible way. The illustrations are large, beautiful and clear. The main facts stand forth unobscured by a multitude of details. There are many instructive diagrams. The skill with which the illustrations have been devised and executed is a prominent feature of the book. Any American students and physicians who use the book merely as an atlas will be amply repaid for their investment in it. This fourth volume includes, besides the central and peripheral nervous systems, the vegetative nervous system, the sense organs including the skin, a section on reflexes and coordination, and one on the glands of internal secretion. Now that the four volumes are completed the publishers announce their intention of publishing it in two volumes at the price of one hundred gold marks. It can be recommended because of the abundance and high quality of the illustrations and the clearness of the text.

HANDBUCH DER INNEREN SEKRETION: EINE UMFASSENDE DARSTELLUNG DER ANATOMIE, PHYSIOLOGIE UND PATHOLOGIE DER ENDOKRINEN DRÜSEN. Herausgegeben von Dr. Max Hirsch. Lieferung 6. Band II, Hälfte 1. Paper. Price, 16 marks. Pp. 1291-1428, with 2 illustrations. Leipzig: Curt Kabitzsch, 1929.

This section of a large work contains a comprehensive chapter on the internal secretory glands of the fetus and of children by Dr. E. Thomas of Duisburg. The chapter will be of particular interest to pediatricians; it is well illustrated and refers to important literature. The rest of the section is taken up with a less significant chapter on the physiology of the vegetative nervous system by Dr. H. Josephy.

Medicolegal

Autopsy: Nature of Suit for Unauthorized Performance; Rights of Coroner.—In the absence of a statute to the contrary, there is no property in a dead body. The surviving spouse, when there has been no estrangement, is entitled to the custody of the body for the purpose of interment, and if it has been unlawfully mutilated without her consent she may maintain an action for the injury to her feelings and the resultant mental suffering. Such an injury is an injury to the person of the plaintiff even though there has been no act of force and violence, nor physical contact with the plaintiff's body. Consequently, when a widow sues for damages to her feelings and for mental suffering caused by the performance, without her consent, of an allegedly unlawful autopsy on the body of her late husband, the action is one for personal injury and must be brought within the time allowed by the statute of limitations for personal injury actions. A coroner, when he has reasonable grounds to suspect that death was sudden or unusual and was caused by violence or by the hand of the deceased, has the authority to hold an inquest. He may act on information, and if the inquest results in a finding that the deceased died a natural death it cannot be held that therefore he had no right to hold an inquest. Furthermore, a coroner may order an autopsy when in his opinion that is the appropriate means of ascertaining the cause of death, without the consent of the family of the deceased.—*Huntly v. Zurich General Accident & Liability Insurance Company (Calif.), 280 P. 163.*

Insurance, Life: Health of Applicant When Policy is Issued.—A life insurance policy provided that the insurer assumed no obligation unless on the date of the issuance of the policy the insured was alive and in good health. The insured, who in her application stated that she had not had tuberculosis, died from that disease. On a suit on the policy, undisputed medical testimony indicated that she was suffering from tuberculosis at the time of the application. The insurance company, however, in defending, failed to rely on the falsity of the answer in the application, and relied solely on the provision in the policy stated above. The court, in allowing a recovery against the insurance company, said that such a condition in a life policy applies only to unsoundness of health arising between the application and medical examination or inspection and the delivery of the policy. Unless it is shown that unsoundness of health occurred after the date of the application and medical examination and before the delivery of the policy, the insurer must rely on the statement in the application to avoid a recovery, and not on the conditions in the policy. Further, the same rule will apply even where no medical examination is made but only an inspection of the applicant.—*National Life & Accident Ins. Co. v. Jones (Ky.) 18 S. W. (2d) 982.*

Failure to Use Roentgen Rays in Reducing Fracture.—A kick by a horse fractured the tibia and fibula of the patient's left leg. Stoll, a physician, attempted to reduce the fracture, but at no time in the earlier stage of his employment did he use roentgen rays to guide him in diagnosis and treatment. According to the record, a ligament or tendon got between the ends of the broken bones and prevented union. When roentgen rays were finally used, they disclosed a space of from three-sixteenths to one-half inch between the ends of the bones. This, according to the record, resulted in an infection and sloughing off of bone, so that plates had to be used to bring the ends together to procure union. Ultimately there was a shortening of the leg. There was evidence to show that it was the customary and usual practice to use roentgen rays in the reduction of fractures, and while they would not show a ligament or tendon between the ends of fractured bones they would show that the bones had not been properly set so as to permit union. There was evidence to show, too, that the ultimate process of curing the infection and procuring union was exceedingly painful and that the patient's crippled condition was

permanent. The jury returned a verdict in favor of the patient for $20,000. On appeal by the physician, however, the Court of Appeals of Ohio, Cuyahoga County, concluded that the verdict was excessive. The jury, said the court, probably took into consideration the pain and suffering that the patient had to endure by reason of the horse's kick, which was no part and could be no part of a judgment rendered against the attending physician, because he was in no way responsible for it. Nevertheless there was ample evidence to justify a verdict against the physician. It was ordered, therefore, that the judgment of the court below be reversed unless the patient remitted $5,000 of the verdict and accepted $15,000 in settlement.—*Stoll v. Balazs (Ohio), 167 N. E. 522.*

Evidence: When Expert Witness May Not Testify Concerning Statements Made by Injured Person.—When a physician examines an injured person solely for the purpose of qualifying as an expert witness in his behalf, statements made by that person to the physician regarding past suffering and the nature and cause of the injury are inadmissible in evidence. The admission of such statements, however, is harmless error when the injured person has testified directly to the facts repeated by the expert witness. Statements regarding present sufferings, made to an expert under similar circumstances, are sometimes competent evidence; but, since they are not made under oath and are self-serving, great caution should be exercised by the court to prevent a plaintiff from supporting his case by what he has told his physician.—*Reid v. Yellow Cab Co. (Oregon) 279 P. 635.*

Narcotic Hospital Inmate Not a "Prisoner."—Section 107 of the California Penal Code makes it a felony for any prisoner charged with or convicted of a felony to escape or attempt to escape from lawful detention. This section does not apply to one, who, while committed to the state narcotic hospital under the California Narcotic Rehabilitation Act, escapes from such detention. The provisions of the penal code were intended by the legislature to be limited to those who have been charged with public offenses and who, while in legal custody as prisoners, either awaiting trial or after conviction, escape or attempt to escape from the places where the custodial restraint is being exercised. The Narcotic Rehabilitation Act provides a method of bringing into court those who have become addicted to the use of narcotics. The court, without a jury, after a hearing may commit such a person to the state narcotic hospital for a period of not less than eight months nor more than two years. Narcotic addiction, however, is not denounced as a crime; the purpose of the act is social rather than penal. Addiction to the use of narcotics is recognized as a disease, rather than a crime, and the entire act is clearly intended for the treatment of the addict from the standpoint of the disease. True, the addict is restrained of his liberty while in the hospital, but that is a circumstance made necessary because of the effect of the drug on the conduct of the addict and the length of time required to accomplish a cure. A person committed to the hospital is properly classed as a patient rather than a criminal.—*People v. Mackie (Calif.) 279 P. 821.*

Wills: Delusions and Testamentary Capacity.—In a medical sense, insanity is used to denote any unsound and deranged condition of the mind and every degree of mental unsoundness, whatever may be its source or cause. Mere proof of mental derangement or insanity in a medical sense is not sufficient to invalidate a will, nor will every degree of mental unsoundness or mental weakness suffice to destroy testamentary capacity. Mental derangement sufficient to invalidate a will must be an unsoundness of mind in one of two forms: (1) mental unsoundness of such broad character as to establish incompetence generally; (2) some specific and narrower form of insanity under which the testator is the victim of some hallucination or delusion. In the latter class of cases, it is not sufficient to establish merely that the testator was the victim of some hallucination or delusion; it must be shown that the will was the offspring of that hallucination or delusion.—*In re: Clark's Estate (Calif.), 280 P. 204.*

Society Proceedings

COMING MEETINGS

American Association for the Study of the Feebleminded, Washington, D. C., May 5-10. Dr. H. W. Potter, Thiells, New York, Secretary.

American Association for Thoracic Surgery, Philadelphia, May 12-14. Dr. Duff S. Allen, Washington University Medical School, St. Louis, Secretary.

American Association of Genito-Urinary Surgeons, French Lick, Ind., May 22-24. Dr. Herman L. Kretschmer, 122 S. Michigan Avenue, Chicago, Secretary.

American Bronchoscopic Society, Atlantic City, May 27. Dr. Louis H. Clerf, 128 S. Tenth Street, Philadelphia, Secretary.

American Climatological and Clinical Association, Quebec, May 12-14. Dr. Arthur K. Stone, Auburn Street, Framingham Center, Mass., Sec'y.

American Gastro-Enterological Association, Atlantic City, May 5-6. Dr. Charles G. Lucas, 321 West Broadway, Louisville, Secretary.

American Gynecological Society, Hot Springs, Va., May 19-21. Dr. Floyd E. Keene, 133 S. 36th Street, Philadelphia, Secretary.

American Laryngological Association, Swampscott, Mass., May 22-24. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, May 28-30. Dr. Robert L. Loughran, 33 E. 63d Street, New York, Secretary.

American Ophthalmological Society, Hot Springs, Virginia, June 2-4. Dr. Emory Hill, 501 E. Franklin Street, Richmond, Va., Secretary.

American Otological Society, Swampscott, Mass., May 20-22. Dr. Thomas J. Harris, 104 E. 40th Street, New York, Secretary.

American Psychiatric Association, Washington, D. C., May 5-10. Dr. C. O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Sec'y.

American Society for Clinical Investigation, Atlantic City, May 5. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Sec'y.

American Surgical Association, Philadelphia, May 15-17. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.

Arizona State Medical Association, Phoenix, April 24-26. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Fort Smith, May 6-8. Dr. William R. Bathurst, 810 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 6-7. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, Del Monte, April 28-May 1. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., June 2-3. Dr. A. J. Chesley, State Board of Health, St. Paul, Minn., Secretary.

Connecticut State Medical Society, Hartford, May 21-22. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 7-8. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Florida Medical Association, Pensacola, May 6-7. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Augusta, May 14-16. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, April 26-28. Dr. A. N. Sinclair, Box 3373, Honolulu, Secretary.

Illinois State Medical Society, Joliet, May 20-22. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Marshalltown, May 14-16. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 6-8. Dr. J. F. Hassig, Huron Building, Kansas City, Secretary.

Louisiana State Medical Society, Shreveport, April 29-May 1. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maine Medical Association, Portland, June 2-4. Dr. B. L. Bryant, 265 Hammond Street, Bangor, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 22-23. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

Mississippi State Medical Association, Vicksburg, May 13-15. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Hannibal, May 12-15. Dr. E. J. Goodwin, 1023 Missouri Building, St. Louis, Secretary.

National Tuberculosis Association, Memphis, Tenn., May 7-10. Dr. C. J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, May 13-15. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Concord, May 13-14. Dr. D. E. Sullivan, 7 N. State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 11-14. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New York, Medical Society of the State of, Rochester, June 2-5. Dr. Daniel S. Dougherty, 2 E. 103d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, April 28-30. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Bismarck, May 27-28. Dr. Charles MacLachlan, San Haven, Secretary.

Ohio State Medical Association, Columbus, May 13-15. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

Oklahoma State Medical Association, Shawnee, May 26-28. Dr. Claude A. Thompson, Barnes Building, Muskogee, Secretary.

Rhode Island Medical Society, Providence, June 5. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

South Carolina Medical Association, Florence, May 6-8. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Sioux Falls, May 20-22. Dr. John F. D. Cook, Langford, Secretary.

Texas, State Medical Association of, Mineral Wells, May 6-8. Dr. Holman Taylor, Medical Arts Building, Ft. Worth, Secretary.

West Virginia State Medical Association, White Sulphur Springs, May 20-22. Mr. Joe W. Savage, Box 1541, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

179: 305-448 (March) 1930

*Nephropathic Effect in Man of Diet High in Beef Muscle and Liver. L. H. Newburgh, M. Falcon-Lesses and M. W. Johnston, Ann Arbor, Mich.—p. 305.
*Treatment of Nontropical Sprue with Liver Extract: Two Cases. W. B. Porter and J. E. Rucker, Richmond, Va.—p. 310.
*Relation of Cholesterol, Lecithin Phosphorus and Fatty Acids to Remission of Pernicious Anemia. G. L. Muller, Boston.—p. 316.
*Paroxysmal Ventricular Tachycardia. M. B. Strauss, Boston.—p. 337.
*Use of Bacteriophage Filtrates in Treatment of Suppurative Conditions. T. B. Rice, Indianapolis.—p. 345.
Three Methods of Obtaining Intestinal Material Directly for Bacteriologic Examination Without Possibility of Contamination from Surrounding Sources. M. Paulson, Baltimore.—p. 361.
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*Influence of Magnesium Sulphate on Secretory Activity of Digestive Glands: I. On Gastric, Intestinal and Pancreatic Secretions. W. H. Gantt, Baltimore, and G. V. Volborth, Leningrad.—p. 375.
*Id.: II. On Biliary Secretion. W. H. Gantt, Baltimore.—p. 380.
New Needle Guard and Guide for Paravertebral Neuron Block Injections. E. L. Stern, New York.—p. 385.
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*Paratyhoid-Enteritidis Meningitis. F. B. Lynch, Jr., and S. A. Shelburne, Philadelphia.—p. 411.

Nephropathic Effect in Man of Diet High in Beef Muscle and Liver.—Newburgh et al. observed in their experimental work a human subject whose urine contained no albumin and less than the average number of casts found in normal men by Addis, and who lived for six months on a diet in which one third of the calories were contained in beef proteins. He developed a significant albuminuria and a twenty-fold increase in casts.

Treatment of Nontropical Sprue with Liver Extract.—In the treatment of two cases Porter and Rucker used a general hospital diet with the addition of liver extract in amounts equivalent to 630 Gm. of raw liver daily, with prompt relief of all symptoms of the disease. The hematopoietic response to liver indicates that the anemia was neither secondary nor aplastic but associated with a megaloblastic hyperplasia of the bone marrow, and was fundamentally of the same type as the anemia of Addison. The prompt relief of intestinal disturbance by the use of that substance contained in mammalian liver is most striking and suggests that the anemia and its associated disturbance of intestinal physiology may be essentially a deficiency disease, and that nontropical sprue is not a moniliasis of the digestive tract. The notable absence of all neurologic phenomena in patients having advanced degrees of macrocytic anemia with normal amounts of hydrochloric acid in the gastric content suggests that the spinal cord changes in pernicious anemia are definitely related to the achylia gastrica found in that disease.

Relation of Cholesterol, Lecithin Phosphorus and Fatty Acids to Remission of Pernicious Anemia.—Cholesterol, lecithin phosphorus and fatty acids of the blood have been determined by Muller at frequent intervals in twenty-six cases of pernicious anemia, especially with reference to the remission. Eight early or doubtful cases of pernicious anemia and two normal adults have been studied in like manner. He found that in pernicious anemia in relapse, the cholesterol and lecithin phosphorus are low, while the fatty acids show variations apparently within normal limits. In typical cases of pernicious anemia in marked relapse, the cholesterol rises suddenly at the onset of the remission. The increase of cholesterol occurs before there is a definite increase in the concentration of erythrocytes and hemoglobin. It is independent of transfusion of blood and is called forth by an adequate dose of potent material effective for pernicious anemia. In patients fed suboptimal amounts of potent material effective in pernicious anemia, the cholesterol level showed wide fluctuations, but when optimal amounts were given there occurred a prompt decrease in the fluctuations and such dosage then maintained the cholesterol at a normal level. After the rise in cholesterol, the increase in red blood cells is not followed by a proportional increase of cholesterol, although in individual cases values above normal may be obtained. Infection, when delaying or causing an irregular remission, is reflected in an irregular response of the lipoids of the blood. The lecithin phosphorus as a rule follows the cholesterol, although exceptions occur. The fatty acids do not show any significant variation during remission. In early or doubtful cases of pernicious anemia with a slight anemia, the level of cholesterol may be high or normal and occasionally somewhat lower than normal. In two healthy men, studied over a considerable period, the addition of liver or liver extract to the diet did not influence the level of cholesterol, lecithin phosphorus or fatty acids, or the number of erythrocytes and reticulocytes. It appears that the low cholesterol and lecithin phosphorus content of the plasma in the complete relapse of pernicious anemia is dependent on the disease process and that the establishment of a normal level of the lipoids is closely associated with the onset of remission or the change that occurs when the reticulocytes respond to therapy and when there is a decrease of bilirubin in the plasma and sudden improvement of the patient.

Paroxysmal Ventricular Tachycardia.—Sixty-three cases of paroxysmal ventricular tachycardia found in the literature and two new cases seen by Strauss are analyzed. No common single etiologic factor could be discovered, but 84 per cent of the cases occurred in patients suffering from organic heart disease, and of these 60 per cent had been treated with digitalis prior to the onset of the tachycardia. In the absence of organic heart disease the prognosis of paroxysmal ventricular tachycardia is good. A probable diagnosis may be made at the bedside in seriously ill patients and quinidine therapy instituted, with uniform success in ending the tachycardia.

Use of Bacteriophage Filtrates in Treatment of Suppurative Conditions.—Rice reports the results of his experience involving approximately 300 cases treated by the local application of bacteriophage filtrates to a wide variety of suppurative lesions, such as boils and carbuncles, abscesses, staphylococcus cellulitis, staphylococcus purulent arthritis, appendiceal abscess, peritonitis, puerperal sepsis, fecal and urinary fistulas, cystitis, infected wounds, bed sores, leg ulcers, perineal lacerations, osteomyelitis, infected tuberculous lesions of bone, mastoidectomy wounds and running ears, sinusitis, staphylococcus septicemia, impetigo, acne and streptococcus infections. In about 90 per cent of the cases excellent results have been obtained. Stock preparations are apparently as good as those specially prepared, except in a few cases. Stock preparations have the great advantage that they are readily available at the time needed, and can be used at a distance from a bacteriophage laboratory. Dosage does not seem to be important, provided the filtrate is used in sufficient amount to give good contact as a wet dressing. No bad results of importance have been observed. Strong antiseptics have seemed to be contraindicated while phage was being used.

Intestinal Polyposis with Instance of Multiple Fibromatous Polyps.—Two cases of multiple polyposis of the intestine are reported by Gottesman and Perla. One was an instance of multiple fibromas of the small and large intestine associated with chronic tuberculous enteritis. A relation between the chronic irritation and the development of the polyps is suggested. The second instance was one of multiple adenomatous polyps of the intestine complicated by intussusception and malignant degeneration. The authors point out that these two instances again emphasize the etiologic rôle of chronic irritation in the formation of new growths.

Influence of Magnesium Sulphate on Gastric, Intestinal and Pancreatic Secretions.—The effect of magnesium sulphate on the stomach, pancreatic and intestinal secretions was studied by Gantt and Volborth. They found that a 30 per cent magnesium sulphate solution acts in the stomach as a mild irritant, producing a small flow, which is usually alkaline. In a few experiments with the pancreatic secretion there was a slight increase in the pancreatic juice, which began immediately after the magnesium sulphate had been given through the stomach tube. There is a copious secretion of the intestinal glands all along the small intestine, produced by the local contact of magnesium sulphate with isolated loops of intestine. This occurred in the upper and lower duodenum as well as in the ileum and jejunum.

Influence of Magnesium Sulphate on Biliary Secretion.—Gantt is in agreement with Lyons, Friedenwald and other prominent gastro-enterologists in the observation that there is often a flow of bile from both the biliary passages and the gallbladder after magnesium sulphate has been introduced through a stomach tube. Subsequent experimental work on dogs in which the magnesium sulphate was put directly into the duodenum rarely produced bile and never any increase of pressure in the gallbladder. In other dogs in which the magnesium sulphate was given by mouth through a tube, bile was usually secreted, but some of these animals never reacted in this way. Finally, in another dog in which he ran the magnesium sulphate directly into the stomach through a fistula, Gantt sometimes obtained regurgitated bile and sometimes he did not.

Bronchiectasis.—Ochsner regards the repeated intratracheal introduction of iodized oil in cases of bronchiectasis as being of distinct therapeutic value. The results of 1,500 bronchographies are reported. One hundred and twelve patients with bronchiectasis were treated; 32 per cent were symptomatically cured; 12 per cent showed radiographic evidence of cure; 36 per cent obtained symptomatic relief but following an acute respiratory infection had a temporary relapse; 32 per cent were improved, and are still under treatment. The "passive" method of introducing the iodized oil is the method of choice because of its simplicity and ease of performance.

Abscess of Lung.—Pus from 118 pulmonary abscesses was studied bacteriologically by Bucher. Streptococci were most commonly found in these cultures. Staphylococci, pneumococci, *Bacillus influenzae*, fusiform bacilli, spirochetes, various anaerobes and other organisms, some unidentified, were also recovered. It is concluded that the organisms found in pulmonary abscess are similar, for the most part, to those found normally in the mouth and upper respiratory tract.

Paratyphoid-Enteritidis Meningitis.—A review of the literature revealed fifteen previous cases of meningitis from which bacilli of the paratyphoid-enteritidis group were isolated, and a sixteenth case is reported by Lynch and Shelburne. Most of the cases occurred in children. All of the patients aged a year or less died, including the present one. In most of the cases the fluid was purulent or showed a predominance of polymorphonuclear neutrophils. In all the previously reported cases in which a blood culture was made, it was positive. In the author's case a blood culture taken post mortem was negative.

American J. Public Health, New York

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Problems in Atmospheric Pollution. A. Wolman, Baltimore.—p. 243.
Difficulties Encountered in Control of Mechanical Refrigeration. J. I. Connolly, T. J. Claffy and J. J. Aeberly, Chicago.—p. 252.
Problems of Cancer Mortality Statistics. H. E. Robertson, Rochester, Minn.—p. 257.
Free Clinics for Preschool Child. S. W. Wynne, New York.—p. 263.
Effect of Prenatal Care on Infant. C. G. Grulee, Chicago.—p. 269.
Effect of Intranatal Care on Infant. W. R. Ramsey, St. Paul.—p. 271.
Effect of Antepartum Care of Mother. B. M. Haines, Washington, D. C.—p. 273.
Health and Safety Survey of Twenty-Five Leading Department Stores in New York. W. Jacobsohn, New York.—p. 277.
Rôle of Food Vehicle in Food Poisoning. T. G. Hull and L. Arnold, Chicago.—p. 287.
Industrial Methyl Chloride Poisoning. H. M. Baker, Evansville, Ind. —p. 291.

American J. Syphilis, St. Louis

14: 1-144 (Jan.) 1930

*Malignant Syphilis. U. J. Wile, L. Wieder and A. S. Warthin, Ann Arbor, Mich.—p. 1.
Extensive Diffuse Syphilitic Myocarditis Associated with Malignant Syphilis. A. S. Warthin, Ann Arbor, Mich.—p. 35.
*Fatal Multiple Fat Embolism in Patient Given Arsphenamine. E. L. Burns and L. Bromberg, St. Louis.—p. 43.
Gastro-Intestinal Manifestations in Syphilis. A. C. Clasen, Kansas City, Mo.—p. 55.
Gumma of Pancreas. O. Berghausen, Cincinnati.—p. 71.
Arsphenamine Sensitization Tests: Arsenical Dermatitis Due to Arsenobenzol Radical of Bismarsen (Bismuth Arsphenamine Sulphonate). A. G. Schoch, Philadelphia.—p. 75.
Palmar and Plantar Keratodermia from Neoarsphenamine: Two Cases. C. White, Chicago. -p. 87.
Treatment of Neurosyphilis. R. H. Foster, Pineville, La.—p. 89.
Insoluble Bismuth Preparation (Mesurol) in Treatment of Syphilis. S. Genovese and F. Vero, New York.—p. 94.
Wassermann Reaction Following Dermatitis and Jaundice from Arsphenamine. A. B. Cannon, New York.—p. 100.
Analysis of 2,500 Blood Wassermann Reactions. T. P. Murdock and W. E. Hall, Meriden, Conn.—p. 107.

Malignant Syphilis.—In a case of severe and fatal malignant syphilis occurring in a young man, aged 24, with 325 distinct ulcerative lesions in his skin, associated with maculopapular eruption, the ulcerative lesions were found, on microscopic study, to be sharply circumscribed anemia infarctions of the corium and epidermis due to thrombosis of the cutaneous vessels, secondary to syphilitic obliteration of medium sized vessels at the border of the corium and subcutaneous tissue. The great size, sharply punched-out borders, scanty exudate and cone shaped form of the ulcers, the absence of histologic lesions of syphilis in their borders and the absence of spirochetes in them, Wile et al. assert, all belonged to the secondary infarction process. The malignancy of the syphilitic process was evidenced in the almost universal involvement of the dermal vessels, leading to their obliteration, thrombosis and consequent infarction of large areas of the skin. This is a new explanation of the cutaneous lesions of malignant syphilis; no previous case like it is said to have been described in the literature. The extensive visceral involvement in this case (thyroid, heart, pancreas and urinary bladder) makes it also unique in the literature of malignant syphilis. The question of congenital or acquired syphilis in this case is an open one. In favor of a congenital infection is the maternal psychosis and the absence of any evidence as to a primary lesion. The patient showed also slight bony stigmas. On the other hand, he admitted frequent exposure; his primary sore may have been hidden, or so slight that he did not notice it. The evidence favors an acquired syphilis, and if this is the case, the patient presents the youngest example of acquired syphilitic myocarditis so far reported.

Fatal Multiple Fat Embolism in Patient Given Arsphenamine.—Burns and Bromberg report the case of a woman, aged 51, who suffered acute illness and death following the injection of arsphenamine. Pathologically a hemorrhagic encephalitis, indistinguishable grossly from that described in many arsphenamine deaths, was found. Microscopic examination revealed multiple fat emboli in the brain, kidneys and lungs.

American Review Tuberculosis, Baltimore

21: 305-422 (March) 1930

*Acute Subapical Versus Insidious Apical Tuberculosis. B. H. Douglas and M. Pinner, Northville, Mich.—p. 305.
Dental Service as Auxiliary in Treatment of Tuberculosis. H. W. Gillett, New York.—p. 327.
Hyposulphite of Soda in Sanocrysin. G. F. Capuano, Bergamo, Italy. —p. 335.
*Blood Sedimentation Test as Routine Procedure in Tuberculosis Dispensary. J. W. Cutler and L. Cohen, Eagleville, Pa.—p. 347.
Influence of Surface Tension on Growth of Tubercle Bacillus. F. B. Cooper, Trudeau, N. Y.—p. 354.
*Influence of Unsaturated Fatty Acids on Virulence of Tubercle Bacilli. G. Platonov, Moscow, Russia.—p. 362.
Chemical Composition of Active Principle of Tuberculin: XII. Precipitin Tests and Differentiation of Various Tuberculin and Timothy Bacillus Proteins. F. B. Seibert, Chicago.—p. 370.
*Sensitization in Experimental Tuberculosis. R. M. Bohart, Seattle. —p. 383.
Experimental Tuberculosis by Intracerebral Inoculation. W. H. Feldman, Rochester, Minn.—p. 400.

Acute Subapical Versus Insidious Apical Tuberculosis.—Douglas and Pinner believe it is justifiable to attempt to differentiate infiltrative subapical and nodular apical tuberculosis. The clinical and roentgenologic character of infiltrative subapical tuberculosis does not explain the nature of its beginning or its relation to the primary infection of the individual. The evidence points strongly to the conclusion that nodular apical tuberculosis is not an incipient lesion but a more or less benign process of long standing, but with little or no tendency to progress. The infiltrative subapical lesion, however, is usually of quite recent origin and is potentially more grave from the standpoint of progression of the disease. The pathologico-anatomic nature of these two types of lesion indicates that the chronic apical one is a nodular productive lesion, whereas the infiltrative one is probably an acute exudative lesion (in other words a bronchopneumonia of tuberculous nature). Early diagnosis and early treatment are all important in the acute subapical lesion.

Blood Sedimentation Test as Routine Procedure in Tuberculosis Dispensary.—The sedimentation test was studied by Cutler and Cohen in 500 patients, all of whom came to the dispensary either for diagnosis because of some complaint referable to the chest or in the follow-up clinic after discharge from a sanatorium. They believe that the sedimentation test is the most valuable single means for estimating activity in pulmonary tuberculosis and can safely be said to have an accuracy of at least 94 per cent. It is of inestimable value in completing the diagnosis of pulmonary tuberculosis, in that it measures the constitutional disturbance that the tuberculous process is producing, just as the roentgen ray or physical examination reveals the pathologic changes that have taken place, and it should be included as part of routine practice when pulmonary tuberculosis is diagnosed. By eliminating the personal equation the sedimentation test makes it possible to measure activity in scientific terms and should serve as a standard for determining activity wherever tuberculous patients are handled.

Influence of Unsaturated Fatty Acids on Virulence of Tubercle Bacilli.—Platonov feels that the parenteral therapy of tuberculosis, consisting in the introduction of various preparations of unsaturated lipoids, deserves serious attention and study. Acids with high iodine value should be assigned a high place in the dietary regimen of the tuberculous. Guinea-pigs inoculated with tubercle bacilli the virulence of which has been lowered under the action of unsaturated fats develop a chronic tuberculous process of fibrous character and show increased resistance to subsequent reinfection.

Sensitization in Experimental Tuberculosis.—From her results and from those of other workers, Bohart concludes that tubercle bacillus filtrates, such as the tuberculins, and proteins derived from them are all ineffective for the production of sensitization in guinea-pigs when tested by the O. T. intracutaneous skin reaction. Killed tubercle bacilli are effective sensitizers under certain conditions. Light-killed tubercle bacilli were found to be less efficient than heat-killed bacilli, while bacilli killed by certain chemicals, such as carbol-fuchsin or ether, were the most efficient.

Archives of Dermatol. & Syphilology, Chicago

21: 355-518 (March) 1930

Importance of Immune Biologic Processes in Morphology of Skin Lesions. J. Jadassohn, Breslau, Germany.—p. 355.
*Mercurial Ointments in Treatment of Syphilis. H. N. Cole, N. Schreiber and T. Sollmann, Cleveland.—p. 372.
*Bismuth Arsphenamine Sulphonate (Bismarsen) in Treatment of Syphilis and Other Spirochetic Infections. J. A. Kolmer, Philadelphia.—p. 394.
Generalized Keratotic Nevus. E. Binzer, Toledo, Ohio.—p. 413.
Cutaneous Neuroma. J. B. Ludy, Philadelphia.—p. 419.
*LIII. Leukoplakia and Cancer of Vulva. F. J. Taussig, St. Louis.—p. 431.
Late Syphilis of Palate. S. S. Greenbaum, Philadelphia.—p. 446.
Acute Vesicular Eruptions of Hands and Feet. C. F. Lehmann, San Antonio, Texas.—p. 449.

Mercurial Ointments in Treatment of Syphilis.—Cole et al. believe that their research proves that the absorption and excretion of mercury after inunction is directly dependent on the concentration of the metal in the base. Mercury in an oleate base does not seem to be much more absorbed than in the ordinary benzoinated lard and suet base. Colloidal mercury ointments show no greater excretion of mercury than official mercury ointments of equal concentration in benzoinated lard. Salivation is possibly more frequent with the colloidal preparations. Fifty per cent mercury in a stiff petroxolin base shows no especial difference in the excretion of mercury from that when simple inunction of 50 per cent mercurial ointment is used. Massive or intensive weekly inunctions of a 30 per cent mercurial ointment, total 9 Gm. of metallic mercury, give an equal or higher excretion of mercury than the simple daily use of 50 per cent mercurial ointment or 50 per cent clean ointment, or daily intramuscular injections of mercuric bromide.

Bismuth Arsphenamine Sulphonate (Bismarsen) in Treatment of Syphilis and Other Spirochetic Infections.—Bismuth arsphenamine sulphonate (bismarsen) combines the advantages of intramuscular and combination therapy. Kolmer reports his experimental and clinical observations. In four cases of primary syphilis the intramuscular injection of 0.2 Gm. of bismarsen caused the disappearance of spirochetes in from thirty-six to 120 hours. These lesions, however, as well as the lesions of the skin and mucous membrane of the secondary stage, disappeared more slowly than is ordinarily observed after the intravenous injection of from 0.4 to 0.6 Gm. of arsphenamine or 0.9 Gm. of neoarsphenamine. Bismarsen has proved especially valuable in the treatment of chronic syphilis because (*a*) it affords a means of avoiding Jarisch-Herxheimer reactions; (*b*) it exerts greater spirocheticidal effects than mercury or insoluble bismuth compounds; (*c*) it has the advantage of safely testing the tolerance of patients for arsenic who have previously had arsenical treatment or accidents; (*d*) it has tonic effects, and (*e*) it represents a true form of combination chemotherapy. Bismarsen would appear to have a special field of usefulness in the treatment of congenital syphilis, particularly in children of 4 years of age or less to whom intravenous medication may not be given. Bismarsen has yielded encouraging results in the treatment of pulmonary spirochetosis and in severe cases of Vincent's angina.

Leukoplakia and Cancer of Vulva.—Experience with forty cases of leukoplakia and seventy-six cases of cancer of the vulva leads Taussig to conclude that the incidence of cancer of the vulva can be reduced about 50 per cent by timely removal of the "precancerous" lesions, a complete vulvectomy for leukoplakic vulvitis. The treatment of such a cancer with the roentgen rays and radium, he says, is attended by unsatisfactory end-results. On the other hand, a complete vulvectomy with removal of the tributary lymph glands by Basset's technic gives brilliant immediate and final results after five years. A permanent cure can reasonably be expected in two of every three cases.

Archives of Internal Medicine, Chicago

45: 319-479 (March) 1930

*Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients. M. H. Barker, Chicago, and E. J. Kirk, Omaha.—p. 319.
*Serologic and Etiologic Specificity of Alpha Streptococcus of Gastric Ulcer. E. W. Saunders, New York.—p. 347.
*Relation of Distribution and Structure of Coronary Arteries to Myocardial Infarction. M. B. Whitten, Rochester, Minn.—p. 383.
*Clinical Aspect of Aputrid Pulmonary Necrosis. L. Kessel, New York.—p. 401.
*Influenza Epidemic of 1928. E. F. Traut and R. D. Herrold, Chicago.—p. 412.
*Range of Effective Iodine Dosage in Exophthalmic Goiter: II. Effect on Basal Metabolism of Daily Administration of One-Half Drop of Compound Solution of Iodine. W. O. Thompson, E. G. Thorp, P. K. Thompson and A. C. Cohen, Boston.—p. 420.
*Id.: III. Effect on Basal Metabolism of Daily Administration of One-Quarter Drop of Compound Solution of Iodine and of Slightly Smaller Doses. W. O. Thompson, A. C. Cohen, P. K. Thompson, E. G. Thorp and A. G. Brailey, Boston.—p. 430.
*Response of Reticulocytes in Secondary Anemias Following Various Forms of Treatment. C. S. Yang and C. S. Keefer, Peiping, China.—p. 456.
*Etiology of Emphysema. L. M. Loeb, Chicago.—p. 464.
*Amylase in Blood in Subacute and Chronic Pancreatic Diseases. E. G. Wakefield, J. M. McCaughan and C. S. McVicar, Rochester, Minn.—p. 473.

Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients.—An inter-

esting clinical observation was made by Barker and Kirk in three cases of acute nephritis which apparently had subsided except for the continued loss of a large amount (from 6 to 15 Gm. a day) of albumin in the urine. All the patients were on a restricted protein intake. Studies of the blood showed a gradual fall in the serum proteins, and later the appearance of edema, together with all of the observations regarded as characteristic of nephrosis. They were impressed by the constant association of this well marked albuminuria with the characteristic blood serum picture. They noticed that the greater the albuminuria, the lower the serum protein, and the lower the serum protein, especially the albumin fraction, the greater the edema. This led them to make experiments to ascertain whether the whole symptom complex of nephrosis might not be secondary to the low serum protein. In order to determine this point, they have attempted to produce in dogs a serum picture analogous to that found in these patients. The results showed that edema in dogs, varying from a slight to a marked degree, can be produced by decreasing their serum protein. The amount of edema both in patients and in dogs seems more closely associated with the level of the serum albumin fraction than with the total protein. The basal metabolism of the dogs fell with the depletion of the blood serum. The blood volume in dogs was unchanged in the edematous period, but the cardiac output was greatly increased. Renal pathologic changes in dogs were produced by a low proteinemia, as shown by the appearance in the urine of albumin, granular casts, fat droplets and products of renal cell degeneration and by definite degeneration of the renal tubules, destruction of the glomeruli and scar tissue formation.

Serologic and Etiologic Specificity of Alpha Streptococcus of Gastric Ulcer.—In his experimental work, Saunders used single strains of streptococci recovered from gastric and duodenal ulcers, ulcers of the throat, lips, mouth and skin, and the teeth. The outstanding facts which in his opinion favor an infectious theory of gastric ulcer are as follows: An alpha streptococcus can be cultivated from practically 100 per cent of active ulcers, in pure culture in a majority of cases. By agglutination and agglutinin absorption, the alpha streptococcus has been proved to be an identical organism. The organism has a tendency to form ulcers and attack skin and mucous membrane. It is related to but not identical with the alpha-prime strains that are found in ulcers of the skin. The serum of patients suffering from peptic ulcer contains this organism's specific agglutinins, seemingly to a degree proportional to the size, stage and extent of the ulcer.

Relation of Distribution and Structure of Coronary Arteries to Myocardial Infarction. — The fact that the injury in infarction is almost always to the left ventricle, whereas the right ventricle rarely is involved, Whitten says, seems to depend on the differences in the anatomic structure of the arteries of the two ventricles. Infarction in the posterior surface of the left ventricle is much more common than has been heretofore recognized. Infarction at the apex may be due occasionally to occlusion of the right coronary artery. It is suggested that the position of the first part of the circumflex branch of the left coronary artery, while it is in the coronary sulcus and above the ventricle, is a factor in making it less liable to occlusion than the anterior descending artery. Infarction in the right ventricle was found only in connection with massive infarction of the left ventricle and usually was minimal. The right ventricle, although it appears to be less vascular than the left, is not believed to be especially predisposed to failure with age. In fact, the left ventricle is found to be the one to fail most frequently from arterial insufficiency.

Clinical Aspect of Aputrid Pulmonary Necrosis.—The clinical history and roentgenologic observations in five cases of aputrid pulmonary necrosis are described by Kessel. The clinical course and necropsy observations in three others were likewise described. He says that aputrid pulmonary necrosis does not produce symptoms. It is discovered either as a roentgenologic observation or at necropsy. Aputrid pulmonary necrosis is differentiated from abscess of the lung complicating pneumonia by the absence of increased cough, foul sputum and clubbing of the fingers and by the fact that the cavity heals spontaneously in a relatively short time.

Influenza Epidemic of 1928. — Cultures made by Traut and Herrold from the nasopharynx and sputum in the 1928 epidemic of influenza gave almost uniformly a predominating growth of green-producing streptococci. In almost every instance, gram-negative diplococci were present in a proportion of from 10 to 75 per cent of the typical streptococci. This combination of pebbly gray diplococcus colonies and larger green streptococcus colonies was so constant as to make the gross recognition of plates from patients with influenza extremely easy. They have never been able to identify *Bacterium pneumosintes* in any of their cultures. Pfeiffer's bacillus was identified in only one culture. The authors feel that Mather's coccus should be tentatively considered the specific cause of influenza until proof is produced to the contrary.

Effect on Basal Metabolism of Daily Administration of One-Half Drop of Compound Solution of Iodine.—The effect of administering one-half drop of the compound solution (about 3 mg. of iodine) daily was noted by Thompson et al. in twenty unselected hospital patients. Thirteen showed a significant reduction in basal metabolism, five showed no change and two showed an increase. Seven showed a lower level of basal metabolism during the subsequent administration of 30 drops daily than during the administration of one-half drop daily. The average reduction in basal metabolism during the administration of one-half drop of compound solution of iodine daily was 14 points (from plus 40 to plus 26 per cent), which was only about half as great as that during the administration of 1 drop daily. The total decrease in metabolism from all doses of iodine was less than in the 1 drop series. In the thirteen cases that responded, the maximum reduction in basal metabolic rate appeared on the average in seven days. In four cases a reduction occurred within twenty-four hours. The authors conclude, therefore, that the daily oral administration of 3 mg. of iodine in the form of compound solution of iodine is inadequate to produce a maximum reduction in basal metabolism in most cases of exophthalmic goiter whereas 6 mg. is adequate.

Effect on Basal Metabolism of Daily Administration of One-Fourth Drop of Compound Solution of Iodine.—During the daily administration of one-fourth drop of compound solution of iodine to fourteen unselected hospital patients with exophthalmic goiter, seven showed a reduction in basal metabolism of from 10 to 26 points, six showed no significant change and one showed an increase. During the administration of one-fifth drop daily to two hospital patients with the disease, one showed a reduction of 14 points and the other showed no change. Thompson et al. conclude that in most of the cases the minimum dose that will produce a maximum reduction in basal metabolism is about 6 mg. of iodine a day. It would appear that in exophthalmic goiter, iodine must be supplied to the thyroid gland faster than it can be utilized in the elaboration of thyroxin, in order to cause the functional change that is associated with the storage of colloid and a decrease in the output of thyroxin. The onset of a reduction in basal metabolism within twenty-four hours after the administration of as little as from 1.5 to 6 mg. of iodine in ten cases suggests that the output of the thyroid sometimes may be diminished before sufficient colloid can be stored to cause a blocking of the secretion. In three of the cases observed, the reaction of iodine appeared to be reversible, the administration of from one-fourth to one-half drop of compound solution daily being associated with an increase in the basal metabolism and in the severity of the disease, and the immediate subsequent administration of large doses being associated with a decrease in both factors. The authors emphasize that in the routine preoperative treatment of exophthalmic goiter, it is desirable to give suddenly an adequate excess of iodine and not to precede this with small doses.

Response of Reticulocytes in Secondary Anemia After Treatment.—In a study of fifty-three cases of secondary anemia, Yang and Keefer found that the response of the reticulocytes depends on the severity and the cause of the anemia, and the form of treatment employed during recovery. The highest reticulocyte counts were observed in malaria, anemia due to

hookworm, and the anemias associated with dysentery, undernutrition and pregnancy. In the latter four conditions, nutritional disturbances seemed to play a part in the production of anemia, and when the patients with these conditions were treated with liver or liver and iron and cod liver oil and a high caloric diet, the anemia decreased and the percentage of reticulocytes increased. In many of the cases of secondary anemia, the results produced in the reticulocyte count by the forms of treatment mentioned were as striking as those seen in pernicious anemia following treatment with liver or liver extract. It would appear, therefore, that feeding of liver as a method of treatment in anemia is not specific for pernicious anemia but has a beneficial effect in many forms of secondary anemia. In many instances, liver and iron together were more effective than liver or iron alone.

Etiology of Emphysema.—Loeb's experimental work proved that long continued high-grade obstruction of the air passages of dogs was insufficient to produce a pathologic picture simulating vesicular emphysema in man. If obstruction is a factor, an additional factor or factors, as an associated infection of the finer respiratory passages, is an essential concomitant. It is possible but improbable that an expiratory obstruction much greater than inspiratory might be adequate.

Amylase in Blood in Subacute and Chronic Pancreatic Diseases.—In a group of twenty patients known to have pancreatic tumors, Wakefield et al. found the values for amylase in the blood increased in six and normal in fourteen. In a group of thirty patients suffering from various diseases, the values for amylase in the blood were increased in two. Blood amylase values were found increased in two patients, with anomalies of growth, namely, dwarfism and acromegalia. This suggests a possible relationship between increased blood amylase values and pituitary dysfunction.

Archives of Physical Therapy, Omaha

11: 49-96 (Feb.) 1930

Penetration of Ultraviolet Light Through the Human Skin. A. Bachem and C. I. Reed, Chicago.—p. 49.
Physical Therapy in Deafness. L. H. Levy, New York.—p. 57.
Value of Iodized Oil in Nasal Accessory Sinus Disease. R. H. Fraser, Battle Creek, Mich.—p. 62.
Physical Therapy in Industry. C. H. Ogden, Chicago.—p. 68.
Contraindications to Use of Physical Therapy in Treatment of Goiter. A. S. Jackson, Madison, Wis.—p. 70.
After-Treatment of Tarsal and Metatarsal Fractures. J. D. Ellis, Chicago.—p. 74.
Treatment of Facial Paralysis. W. L. Cahall, Utica, N. York.—p. 78.

Archives of Surgery, Chicago

20: 355-542 (March) 1930

Resorption of Bone. H. L. Jaffe, New York.—p. 355.
Localized Bulbar Cisterna (Pontile) Meningitis, Facial Pain and Sixth Nerve Paralysis and Relation to Caries of Petrous Apex. W. P. Eagleton, Newark, N. J.—p. 386.
*Nature of Ewing's Tumor. M. M. Copeland and C. F. Geschickter, Baltimore.—p. 421.
*Ischiorectal Prostatectomy. J. M. Meherin, Halle, Germany.—p. 437.
*Choledochogastrostomy for Scar Tissue Obstruction of Common Duct. J. W. Hinton, New York.—p. 447.
*Repair of Cleft Palates After Unsuccessful Operations. E. C. Padgett, Kansas City, Mo.—p. 453.
Cystic Cirrhosis of Breast. M. A. Goldzieher and J. Kaldor, New York.—p. 473.
Carcinoma of Large Bowel Not Including Rectum and Rectosigmoid. L. P. Bell, Woodland, Calif.—p. 491.
Hypertonicity with Hypertrophy of Pylorus in Adults. C. B. Morton, Charlottesville, Va.—p. 508.
Chronic Cystic Mastitis. J. S. Rodman and H. Ingleby, Philadelphia.—p. 515.

Nature of Ewing's Tumor.—Sixty cases grouped under the name of periosteal round cell sarcoma or Ewing's endothelial myeloma were analyzed by Copeland and Geschickter. The facts brought out point to the conclusion that the tumor is a malignant sarcoma of the bone. They are against the belief that the tumor is possibly a myeloma originating in the marrow cavity. The majority of the observations could be explained by either an intracortical or a subperiosteal origin of the tumor.

Ischiorectal Prostatectomy.—The Voelcker method of ischiorectal prostatectomy is described by Meherin and its advantages over the perineal and suprapubic operations are stressed. In a series of 148 cases in which the operation was performed by eight surgeons, the mortality rate was 4.07 per cent.

Choledochogastrostomy for Scar Tissue Obstruction of Common Duct.—Hinton reviews the literature and reports one new case in which no other course seemed possible because of the presence of extensive adhesions. The gallbladder bed could be exposed without much difficulty, and the stomach was freely movable; the duodenum was adherent and definitely fixed. A definite scar tissue obstruction was found in the common duct 1 inch (2.5 cm.) below the hepatic veins, with a dilatation of the upper inch of the common duct. The stomach could be easily approximated to the dilated portion of the common duct. It was impossible to approximate the duodenum to the common duct. A direct anastomosis between the common duct and the stomach was done, the steps of which were identical with the steps of a gastro-enterostomy. The patient was discharged from the hospital on the twentieth day.

Repair of Cleft Palates After Unsuccessful Operations.—Padgett reports cases in which he made use of a pedicled flap from the posterior pharyngeal wall in order to lengthen somewhat the short velum without narrowing the nasopharynx or oropharynx sufficiently to interfere with the function of breathing or swallowing. The method is said to be particularly applicable to those cases in which a considerable part of the velum has sloughed. For the repair of the palate in which most of the tissues of both the hard and the soft palate have sloughed, a pedicled flap of skin and subcutaneous tissue from the arm or neck was used.

Arkansas M. Soc. Journal, Little Rock

26: 179-198 (Feb.) 1930

Conditions Simulating Sciatica. F. J. Scully, Hot Springs National Park.—p. 179.
Orthodontics: Its Aims. C. W. Koch, Little Rock.—p. 182.
Periarterial Sympathectomy. A. F. DeGroat, Fayetteville.—p. 188.

Florida M. Assn. Journal, Jacksonville

16: 345-384 (Feb.) 1930

Physiology of Spinal Anesthesia. J. M. Bryant, Jacksonville.—p. 345.
Use of Radium in Treatment of Uterine Hemorrhage. G. R. Holden, Jacksonville.—p. 355.
Myasthenia Gravis: Case. J. D. Gable, Lake City.—p. 361.

Journal of Exper. Medicine, Baltimore

51: 357-517 (March 1) 1930

Refractory Period of Normally Beating Dog's Auricle; Occurrence of Auricular Fibrillation Following Single Stimulus. E. C. Andrus and E. P. Carter, Baltimore.—p. 357.
Vital Staining: I. Problems in Colorimetry. Quantitative Analysis of Mixtures of Colored Substances in Solution. H. P. Smith, Rochester, N. Y.—p. 369.
Id.: II. Removal of Brilliant Vital Red from Blood Stream: Distribution of Dye Between Blood Stream and Body Tissues. H. P. Smith, Rochester, N. Y.—p. 379.
Id.: III. Simultaneous Ingestion of Two Dyestuffs by Phagocytes. Question of Blockade of Reticulo-Endothelial System. H. P. Smith, Rochester, N. Y.—p. 395.
Cutaneous Reactions with Culture Filtrates of Colon Typhoid Type. E. E. Ecker and H. Welch, Cleveland.—p. 409.
Changes in Humoral Immunity Occurring During Early Stages of Experimental Pneumococcus Infection. E. E. Terrell, Chicago.—p. 425.
Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Products: I. Antibody Response. L. A. Julianelle, New York.—p. 441.
Id.: II. Resistance to Infection. L. A. Julianelle, New York.—p. 449.
Id.: III. Reactions at Site of Injection. L. A. Julianelle, New York.—p. 463.
Immunologic Significance of Colostrum: I. Relation Between Colostrum, Serum, and Milk of Cows Normal and Immunized Toward B. Coli. T. Smith, Princeton, N. J.—p. 473.
Id.: II. Initial Feeding of Serum from Normal Cows and Cows Immunized Toward B. Coli in Place of Colostrum. T. Smith and R. B. Little, Princeton, N. J.—p. 483.
*Relationship of Yellow Fever of Western Hemisphere to That of Africa and to Leptospiral Jaundice. W. A. Sawyer, S. F. Kitchen, M. Frobisher, Jr., and W. Lloyd, New York.—p. 493.

Relationship of Yellow Fever of Western Hemisphere to that of Africa and to Leptospiral Jaundice.—Sawyer et al. conclude that the yellow fever now in South America, the present yellow fever of Africa and the historic yellow fever of Panama and other American countries are the same disease. This conclusion is based on cross immunity tests in monkeys

with strains of yellow fever virus from Africa and Brazil and on tests of serum from twenty-five persons, who had recovered from yellow fever in various places and at various times, for the power to protect monkeys against African or Brazilian virus strains. Cases of leptospiral jaundice (Weil's disease) were present among those diagnosed as yellow fever in the recent epidemic in Rio de Janeiro. This is shown by the isolation of cultures of leptospirae from the blood of two patients by Muller and Tilden and by the demonstration by the authors of protective power against leptospirae and absence of protective power against yellow fever virus in the serums from two persons after recovery. The isolation of leptospirae by Noguchi and other investigators from the blood of occasional patients in past epidemics of yellow fever in a number of American countries indicates that leptospiral jaundice was present then as well and was diagnosed clinically as yellow fever. The absence of protective power against leptospirae shown by the Brazilian serums which protected against yellow fever virus and the absence of protective power against yellow fever virus in the serum that protected against leptospirae point to the probability that American yellow fever is not the combined effect of leptospirae and yellow fever virus. The position of *L. icteroides*, isolated by Noguchi during yellow fever epidemics, now appears to be not that of a secondary invading micro-organism in cases of virus yellow fever but that of the incitant of a form of infectious jaundice, sometimes fatal, often coincident in its appearance with typical yellow fever and apparently indistinguishable from it clinically. This leptospiral disease has not hitherto been separated from true yellow fever. The only difference observed between the American and African strains of yellow fever virus was a pronounced difference in virulence for monkeys. The virulence of the two African strains studied was high, while that of the one American strain was highly variable and usually low.

Kentucky Medical Journal, Bowling Green

28: 125-172 (March) 1930

Iodine in Hyperthyroidism. R. P. Ball, Louisville.—p. 127.
Résumé of Five Years' Work in City Hospital in Department of Gynecology, University of Louisville. W. O. Johnson, Louisville.—p. 132.
Injection Treatment of Varicose Veins. F. P. Strickler, Louisville.—p. 140.
Undulant Fever. S. J. Crumbine, New York.—p. 143.
Spinal Anesthesia. E. W. Northcutt, Covington.—p. 147.
Ruptured Liver with Recovery. O. E. Bloch, Louisville.—p. 152.
Continuous Spinal Drainage in Case of Purulent Meningitis. K. A. Fischer, Louisville.—p. 153.
Self Medication with Bad Results: Diverticulitis. J. R. Morrison, Louisville.—p. 156.
Traumatic Cyanosis: Case. D. P. Hall, Louisville.—p. 157.
Treatment of Chronic Deforming Arthritis of Extremities by Sympathetic Ganglionectomy: Two Cases. R. G. Spurling. Louisville.—p. 158.
Pancreatic Cyst: Case. F. L. Koontz, Louisville.—p. 167.

Laryngoscope, St. Louis

40: 85-164 (Feb.) 1930

Contribution to Etiology of Progressive Deafness. M. J. Gottlieb, New York.—p. 85.
Otitic Pyemia Without Sinus Thrombosis: Case. E. M. Seydell, Wichita, Kan.—p. 99.
Etiologic Factors in Sinus Inflammations. E. R. Lewis, Los Angeles.—p. 103.
Chronic Frontal Sinusitis with Acute Exacerbation. A. Palmer, New York.—p. 112.
Pemphigus Involving Mouth, Tongue, Palate and Larynx: Case. H. M. Cunningham, Vancouver, B. C.—p. 114.
Tuberculous Parotitis: Case. H. M. Cunningham, Vancouver, B. C.—p. 116.
Lingual Tonsil. M. V. Miller, Philadelphia.—p. 117.
Massive Atelectasis of Right Lung: Case. H. L. Baum, Denver.—p. 124.
Historic Retrospect—Laryngologic. A. J. Guerinot, Pittsburgh.—p. 127.
Portion of Safety Pin in Right Main Bronchus; Removal; Bronchoscopy. E. G. Gill, Roanoke, Va.—p. 130.
*Chaulmoogra Oil in Treatment of Laryngeal Tuberculosis. G. M. Van Poole, Honolulu.—p. 132.

Chaulmoogra Oil in Treatment of Laryngeal Tuberculosis.—The preparation of chaulmoogra oil used by Van Poole was the one described by Dean and Wrenshall in 1922. It was applied locally, a few drops being allowed to fall directly on the ulcer. The application has been made three times a week. The treatments relieved the pain and dysphagia; the patients could partake of more nourishment, because of less dysphagia, thus aiding materially in restoring their bodily vigor and building up their resistance. In twenty-eight cases treated, the ulcers healed in twenty-one; in three they remained unaffected; in two the condition is arrested, and in two improved.

Maine M. Journal, Portland

21: 17-31 (Feb.) 1930

Spinal Anesthesia. W. E. Tobie, Portland.—p. 21.
Gospel of Childbirth According to John Salesman. S. P. Warren, Portland.—p. 21.
Causes of Arthritis. R. Osgood, Boston.—p. 23.

Medical J. & Record, New York

131: 233-284 (March 5) 1930

Physician and Changing Order. G. W. Kosmak, New York.—p. 233.
Angina Pectoris. K. F. Wenckebach, Vienna, Austria.—p. 238.
Glance Backward in Study of Epilepsy. E. A. Tracy, Boston.—p. 242.
Fatal Case of Gastralgia with Urologic Causal Factor. J. J. E. Maher, New York.—p. 244.
Importance of Complete Skin Tests in Asthma: Case. D. L. Engelsher, New York.—p. 246.
Injection Treatment of Varicose Veins. E. J. Garvin, Philadelphia.—p. 247.
Evolution Disproves Heredity in Mental Diseases. L. J. Doshay, New York.—p. 248.
Suggestions in Treatment of Ordinary Dermatoses Observed in General Practice. P. E. Bechet, New York.—p. 251.
Treatment of Furuncles. O. L. Levin, New York.—p. 253.
Etiology and Treatment of Eczema. S. Feldman, New York.—p. 257.
Rational Treatment of Ringworm of Toes. H. Goodman, New York.—p. 261.
Cutaneous Manifestations of Pellagra: Case. J. Welfeld, Chicago.—p. 262.
Allergy in Infectious Diseases of Skin. M. B. Sulzberger, New York.—p. 264.

New England J. Medicine, Boston

202: 405-464 (Feb. 27) 1930

*Body Fluids in Cancerous and Noncancerous Individuals. H. C. Pitts and H. R. Johnson, Providence, R. I.—p. 415.
Boston Medical Library. C. F. Painter, Boston.—p. 424.
Cancer Clinics. R. B. Greenough, Boston.—p. 426.

Body Fluids in Cancerous and Noncancerous Individuals.—From a study of the blood serum and blister fluid in cancerous and noncancerous individuals, Pitts and Johnson learned that the blood serum of cancer patients contains essentially the same amounts of potassium, calcium and sodium and has the same p_H as noncancerous serum, although the p_H and potassium are perhaps a bit higher in the cases of cancer. In the blister fluid of cancer patients the calcium and p_H are lower and the potassium and sodium higher than in normal or noncancerous individuals. The calcium of the blister fluid of tuberculosis patients is higher than that of normal persons or those with cancer. They conclude that cancer is not more prevalent in individuals of any one blood type than in any other.

Philippine Islands M. Assn. Journal, Manila

10: 1-50 (Jan.) 1930

Functions of Liver in Hemolysis, Acute Yellow Atrophy and Obliteration of Common Bile Duct. M. P. Mendoza-Guazon.—p. 1.
Appraisal System in Sanitary Control and Supervision of Eating and Food Handling Establishments. M. A. Asuzano.—p. 11.
Medical Impressions Abroad. M. N. Tuason.—p. 23.
Presence in Human Stools of Eggs of Trematode Parasitic in Fish. M. A. Tubangui and S. A. Francisco.—p. 31.

Public Health Reports, Washington, D. C.

45: 361-438 (Feb. 21) 1930

Influenza-Pneumonia Mortality in Group of About Ninety-Five Cities in United States, 1920-1929. S. D. Collins,—p. 361.

45: 481-539 (March 7) 1930

Resistance of Paramecium to Heat as Affected by Changes in Hydrogen Ion Concentration and in Inorganic Salt Balance in Surrounding Medium. H. W. Chalkley.—p. 481.

South Carolina M. Assn. Journal, Greenville

26: 25-56 (Feb.) 1930

Prevalent Mental Disorders and Some Methods of Prevention. E. L. Horger, Columbia.—p. 26.
Lye Burn of Esophagus in Infant Followed by Stricture. E. W. Carpenter, Greenville.—p. 31.
Tribute to Memories of Drs. Charles L. Minor and William LeRoy Dunn. J. W. Jervey, Greenville.—p. 32.

Nasal Sinus Infection. W. B. McWhorter, Anderson.—p. 32.
Sodoku. G. P. Neel, Greenwood.—p. 34.
Mastoiditis, Lateral Sinus Thrombosis, Septicemia and Meningitis with Recovery. W. H. Prioleau and E. F. Parker, Charleston.—p. 35.

Tennessee State M. Assn. Journal, Nashville

23: 41-78 (Feb.) 1930

Spinal Anesthesia: Advantages and Disadvantages. J. L. McGehee, Memphis.—p. 41.
Blood Transfusion. W. J. Sheridan, Chattanooga.—p. 44.
Treatment of General Paralysis. H. B. Brackin, Nashville.—p. 51.
Lipiodol in Chronic Maxillary Sinus Disease. W. J. Greenfield, Memphis.—p. 55.

United States Veterans' Bur. M. Bull., Washington, D. C.

6: 177-261 (March) 1930

Roentgen Radiation: Production and Relation to Natural Phenomena. A. E. Williams.—p. 177.
*Chorionepithelioma in Male. G. C. Emery.—p. 189.
Intestinal Tuberculosis. H. L. Ison.—p. 192.
Secondary Tuberculosis of Pleura and Liver Simulating a Malignant Neoplasm. A. G. Walker.—p. 196.
Are Dementia Praecox and Schizophrenia Synonyms? M. K. Amdur.—p. 201.
Rôle of Neuropsychiatric Service in General Hospital. P. P. Barker.—p. 210.
Functional Tests of Kidney Diseases. O. Harmos.—p. 215.
Landmarks of Chest. A. D. Simington.—p. 228.
After Care Work with Mental Patients. B. E. Smith.—p. 233.
Impressions for Partial Dentures. B. J. Durham.—p. 239.
Progressive Osteomyelitis of Cranial Bones. H. V. Hanson.—p. 241.
Tuberculosis with Ulcers in Mouth. G. F. Robinson.—p. 242.

Chorionepithelioma in Male.—Emery's patient was admitted to the hospital with a tentative diagnosis of miliary tuberculosis of the lungs and a tuberculous left kidney. He complained bitterly of pain in the head and abdomen, and was so extremely nervous that he appeared to be on the verge of a maniacal attack. There was a pronounced muscular tremor of the whole body, more marked in the legs and over the abdomen. The abdominal pain was confined mostly to the left upper quadrant. Roentgen examination of the chest showed both apexes cloudy as a result of a probable tuberculous infiltration, and areas of increased density about 2 cm. in diameter scattered throughout both lungs, which had the appearance of malignant metastases. The left testicle was somewhat enlarged and tender. The upper part of the abdomen was rigid and extremely sensitive, especially to the left of the median line, so much so that a satisfactory examination could not be made. There was severe and persistent vomiting. On account of the lung picture and the evidence of pathologic changes in the abdomen, a diagnosis was made of a malignant growth, type undetermined, probably involving the stomach as the primary lesion, with metastasis into the lungs. Death occurred twelve days after admission. At postmortem the lungs were found to contain large numbers of discrete tumor-like nodules varying in size up to a walnut. In the abdomen there was a tumor mass about the size of a large orange, irregularly elliptic and diffusely nodular, located just anterior and medial to the left kidney. The parenchyma of the kidney was not attached to the tumor mass. The mesenteric and paravertebral lymph nodes were not involved. The other abdominal organs presented nothing of special interest. A small tumor mass was noted at the upper pole of the left testicle but was not removed for section. Microscopically the tumor proved to be a chorionepithelioma. The tumor masses in the lungs showed the same structural characteristics as the large tumor. The brain and cord were not examined, but from the pronounced nervous symptoms it was considered probable that there were metastases into these tissues.

Virginia Medical Monthly, Richmond

56: 783-842 (March) 1930

Treatment of Varicose Veins by Injection of Quinine Urethane. D. Daniel, Richmond.—p. 783.
Id. F. Helvestine, Jr., Roanoke.—p. 785.
*Arachnidism: Case Simulating Diffuse Peritonitis. W. L. Peple, Richmond.—p. 789.
Fracture of Pelvis: Case. C. W. Putney, Staunton.—p. 792.
Syphilis of Cardiovascular System. H. H. Hazen, Washington, D. C.—p. 797.
Unusual Problems in Surgical Diagnosis: Illustrated Case. T. J. Hughes, Roanoke.—p. 799.
Graphic Presentation of Improvement of Nutrition in Children's Preventorium. S. Newman, Danville.—p. 801.
Treatment of Neglected or Late Cases of Appendicitis. S. B. Moore, Alexandria.—p. 805.
Use of Amytal as General Anesthetic. J. H. Bell, D. P. Peters, G. B. Arnold and N. B. Jeter, Colony.—p. 807.
Circumcision Board: Especially for New-Born. J. Bear, Richmond.—p. 812.
*Beriberi in Virginia: Case. O. Swineford, Jr., University.—p. 814.
Considerations in Prevention of Recurrence of Inguinal Hernias. P. Jacobson, Petersburg.—p. 820.
Undescribed Genital Lesion (Nonspecific Subacute Inflammatory Lesion of Preputial Sulcus of Penis). T. L. Driscoll, Richmond.—p. 825.

Arachnidism Simulating Diffuse Peritonitis.—Peple relates the case of a boy, aged 6, who was bitten on the thumb by a black spider. In an hour and twenty minutes he presented a typical picture of diffuse peritonitis. He was given dextrose and sodium bicarbonate by rectum, and every four hours 5 grains (0.32 Gm.) of calcium lactate and 2 teaspoonfuls of magnesia magma. He recovered.

Beriberi in Virginia.—The case reported by Swineford is unique in that it had been of thirty years' duration and the onset of the first symptoms were noted during a prolonged illness with typhoid. Repeated efforts to isolate the beriberi bacillus of Matsumara were unsuccessful. There were numerous *B. coli-communior* organisms, which, however, failed to agglutinate with the patient's serum.

West Virginia M. Journal, Charleston

26: 129-192 (March) 1930

What Surgeon Expects from Hospital. A. G. Rutherford, Welch.—p. 129.
State and General Hospital. W. S. Fulton, Wheeling.—p. 131.
Organized Hospitals. R. A. Ireland, Charleston.—p. 133.
Fire Prevention. F. E. Greene, Cleveland.—p. 134.
Origin and History of Hospitals. H. B. Altmeyer, Huntington.—p. 138.
Cost of Modern Hospital Care. M. Fishbein, Chicago.—p. 139.
Descartes Was Right. H. M. Hall, Wheeling.—p. 141.
Sodium Amytal. A. P. Butt and E. M. Dunstan, Elkins.—p. 153.
Coronary Occlusion. E. F. Peters, Princeton.—p. 157.
Eczema Problem. J. H. Stokes, Philadelphia.—p. 159.
Prostatectomy Followed by Sudden Death: Case. W. R. Laird, Montgomery.—p. 167.

Wisconsin M. Journal, Madison

29: 65-120 (Feb.) 1930

*Wisconsin Maternal Mortality, 1927-28. C. J. Calvert, Madison.—p. 65.
Use and Abuse of Pituitrin in Obstetrics. W. E. Leaper, Green Bay.—p. 69.
Minor Disabilities of Knee. F. E. Turgasen, Manitowoc.—p. 73.
Rhinophyma: Case. M. N. Federspiel, Milwaukee.—p. 75.
Principles of Roentgen Therapy: II. Fundamentals of Dosimetry. E. A. Pohle, Madison.—p. 80.
Diagnostic Problem. L. M. Warfield, Milwaukee.—p. 83.
Acrodynia: Case. J. E. Gonce, Madison.—p. 84.

Wisconsin Maternal Mortality, 1927-1928.—All maternal deaths for 1927 and 1928 have been investigated by Calvert for purposes of analysis. There were 766 maternal deaths in this two-year period. Of these, 134 were cases in which another cause of death was primary. There were 632 deaths recorded as puerperal. This means that in Wisconsin, in women between 15 and 45 years of age, childbearing is the second cause of death, tuberculosis alone exceeding childbearing in the number of deaths (1,123 deaths). Approximately one death in every eight of women in this age group is a puerperal death. One mother dies for each 182 live births reported. These maternal deaths, in the two years, left nearly 1,700 children motherless. Associated, too, with the death rate of the mothers is a high incidence of stillbirths. Only 47 per cent of these mothers delivered a live child in this pregnancy; 34 per cent were delivered before the fifth month or died undelivered, and 19 per cent delivered a stillborn child. When the mother dies, stillbirths form 28 per cent of the total births, while stillbirths comprise 2.7 per cent of the total births reported for the state. Of interest from the standpoint of society, too, is the fact that one third of the maternal deaths were in primiparas, dying in their first pregnancy. Forty-five per cent of the deaths were in women under 30 years of age. As the cause of death puerperal sepsis stands first, with one third of all deaths, and eclampsia second, with one fourth of all deaths. Accidents of

pregnancy total 10 per cent, accidents of labor an equal number, 10 per cent, hemorrhage 14 per cent, and embolism and sudden death 8 per cent. Further study of the deaths from sepsis shows that 35.3 per cent—more than one third—are deaths following septic abortions, either criminal, self-induced or recorded as spontaneous or possibly self-induced. Sepsis developing following deliveries accounts for 58 per cent of the total septic deaths. A study of the prenatal care which these 632 mothers received shows that of the total number in whom the question of prenatal care was felt to be applicable, and exclusive of all self-induced and criminal abortions and cases in which the pregnancy terminated before the third month, 44 per cent had no prenatal care whatever. Another 20 per cent were seen by the physician once or twice, or perhaps a specimen was sent in for urinalysis. Another 5.5 per cent were under care from the seventh month on. Only 23 per cent were under care from the fifth month or before. More urban mothers had prenatal care than rural mothers. Fifty-one per cent—more than one half—of the rural mothers had no prenatal care and 37 per cent—more than one third—of the urban mothers had no prenatal care. Sixty per cent of all the deliveries were by operative procedures. The method most frequently employed is the application of forceps, constituting 36 per cent—more than one third—of all operative procedures. Cesarean deliveries are second in frequency. Thirteen per cent of all the mothers who died following a delivery died following cesarean section, or 27 per cent of all operative deliveries were cesarean sections. Version and extraction deliveries formed 27 per cent of the total and other operative procedures were employed, either alone or with another form of delivery, in 34 per cent. The attendant at delivery was a physician in 93 per cent of all deaths. There were less than 1.5 per cent of deliveries by midwives, and a physician followed a midwife as attendant in only five cases—1.1 per cent. Three and four-tenths per cent of the mothers had an untrained attendant or were without care at delivery.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Bio-Physics, London

2: 75-94 (Feb.) 1930

Diathermy Treatment of Puerperal Septicemia and Pneumonia. C. A. Robinson.—p. 78.
Physical Treatment of Disease. E. Browning.—p. 83.
Photosensitization: Nature and Use. A. Furniss.—p. 86.
Improved Method for Treatment of Otitis Media by Ionization. W. C. Douglass.—p. 88.

British Medical Journal, London

1: 321-372 (Feb. 22) 1930

Hero Worship in Surgery. E. W. H. Groves.—p. 321.
*Advantages to Diabetic of Diet Rich in Carbohydrates. J. A. Nixon.—p. 326.
Missed Diagnoses. J. Burnford.—p. 327.
Radiologic Diagnosis of Diseased Appendix: Seven Cases. A. Orliansky.—p. 330.
Outbreak of Psittacosis: Five Cases. M. C. Radford.—p. 333.
*Treatment of Pernicious Anemia with Desiccated Hog's Stomach. A. Renshaw.—p. 334.
*Probable Septicemia Treated with Scarlet Fever Serum. R. E. Lord and J. Holmes.—p. 335.
Cerebral Malaria: Case. W. Broadbent.—p. 336.
Toxic Effects of Methyl Chloride Gas. B. B. Sharp.—p. 336.

Advantages to Diabetic Patient of Diet Rich in Carbohydrates.—It has been Nixon's experience that if fats are limited and sugar is omitted, few patients will voluntarily exceed a 3,000 calory diet which contains ordinary carbohydrate and meat. They must, of course, be careful not to take sugar or jam in any form, raw or cooked. The advantages that may be claimed for allowing diabetic patients a diet rich in carbohydrates appear to be that contentment and satisfaction are secured; the regimen is more readily observed; the danger of ketosis is removed; arteriosclerosis is delayed and, most important of all, a fat-poor diet increases carbohydrate tolerance and the prospects of pancreatic regeneration.

Treatment of Pernicious Anemia with Desiccated Hog Stomach.—Renshaw reports a case of pernicious anemia in which a severe relapse occurred while the patient was on liver treatment. Recovery resulted from the subsequent administration of desiccated hog stomach.

Probable Septicemia Treated with Scarlet Fever Serum.—In the case reported by Lord and Holmes, injection of antiscarlatinal serum seems to have been the deciding factor in bringing about a recovery.

1: 373-428 (March 1) 1930

Anatomy, Orthodox and Heterodox, in Relation to Surgery. W. M. Eccles.—p. 373.
Diagnosis and Treatment of Pulmonary Tuberculosis. W. A. Dickson.—p. 376.
Retrograde Needling in Carcinoma of Tongue. K. H. Pridie.—p. 380.
Pathogenesis of Pulmonary Cavities. S. V. Pearson.—p. 380.
Diverticulitis: Diagnosis by Radiology. W. H. Rowden.—p. 381.
*Significance of Subclavicular Pain in Lesions Near Diaphragm. Z. Cope.—p. 383.
*Hereditary Factor in Asthma and Other Allergies. G. W. Bray.—p. 384.
Four Cases of Adder Bite. M. R. Taylor.—p. 387.
Infection with Bacillus Enteritidis Resembling Psittacosis. J. C. Hamilton.—p. 388.
Protection Afforded by Short Infra-Red and Red Rays to Lethal Dose of Staphylococcus. L. Hill and A. Eidinow.—p. 388.

Significance of Subclavicular Pain in Lesions Near Diaphragm.—Cope has found that pain in the subclavicular fossa is a helpful symptom in distinguishing between a supradiaphragmatic and an infradiaphragmatic lesion. In cases of doubtful diagnosis, subclavicular pain almost always indicates a lesion on the upper surface of the diaphragm. In those rarer cases in which an abdominal lesion causes subclavicular pain there is always some clear lead to the diagnosis from definite signs in the lower part of the abdomen. Thus, a slight left subclavicular pain may be consequent on the perforation of an ulcer on the anterior wall of the stomach; presumably the contents impinged against the anterior part of the diaphragm. In the same manner the blood from a ruptured ectopic gestation may flood up to the diaphragm and cause pain over and below the clavicles, but here other symptoms lead to the diagnosis.

Hereditary Factor in Asthma and Other Allergies.—Two hundred consecutive unselected cases of asthma were investigated by Bray with regard to sex incidence, age at onset of asthmatic symptoms, and the presence or absence of allergy in other members of the family. In all, 4,152 relatives were considered. Only about 5 per cent of the children were of Jewish parentage. A positive family history of allergy was determined in 68.5 per cent of the cases. In 51.5 per cent the history was unilateral, while in 17 per cent it was bilateral.

Edinburgh Medical Journal

37: 141-228 (March) 1930

*Occurrence of Bovine Type Tubercle Bacillus in Pulmonary Tuberculosis: Rôle in Pathogenesis. W. T. Munro.—p. 141.
Education of Public in Health Matters, Work of National Association for Prevention of Tuberculosis. W. Brand.—p. 159.
*Prognostic Value of Blood Sedimentation Test in Tuberculosis. D. M. Dunlop.—p. 168.
*Leukocytic Reaction to Tuberculosis: Value in Prognosis. D. M. Dunlop.—p. 174.
Microbic Dissociation: Acid-Fast Bacilli. R. S. Begbie.—p. 187.
*Inoculation of Calf with Human Tubercle Bacillus. R. Philip, J. C. Simpson and D. M. Dunlop.—p. 192.
Difficulties in Assessing Capacity for Work of Ex-Sanatorium Patients. A. M. M'Intosh.—p. 196.
*Relation Between Glandular and Pulmonary Tuberculosis. D. M. Dunlop.—p. 202.

Occurence of Bovine Type Tubercle Bacillus in Pulmonary Tuberculosis.—Of ten patients coughing up the bovine type of tubercle bacilli, Munro says four showed root-spread disease, of whom one is dead, two are free from infection, and the other, seen more recently, is making good progress. Five of the patients showed the distribution of disease common in the ordinary human type of pulmonary tuberculosis. Three of these are dead, one from a nontuberculous cause with the lung condition showing much sign of healing. One patient is well, and another is making good progress. One patient showing considerable atelectasis of a lung is really well. Of the six patients alive, four are free from infection and two are making good progress.

Prognostic Value of Blood Sedimentation Test in Tuberculosis.—The blood sedimentation rate of thirty individuals suffering from various types of tuberculosis of varying degrees of severity has been examined by Dunlop at intervals, and the blood of five healthy controls has been similarly examined. He found that the rate seems usually to be an expression of the degree of activity of the disease, the blood of patients with definite symptoms of activity, such as fever, loss of weight, and rapid pulse, showing a rapid and marked sedimentation rate, which becomes slower and advances to a less degree as improvement takes place, and, when the disease is quiescent, gives readings within normal limits. The test is, however, by no means infallible, and should never alone be taken as a prognostic index or as definite evidence of activity or inactivity, but at the most only as a factor in the cumulative evidence which leads to such conclusions.

Leukocytic Reaction to Tuberculosis.—As part of a study of the white blood picture of tuberculous patients admitted to a sanatorium colony, Dunlop now reports on the results of 500 examinations. In health the ratio between the neutrophils and lymphocytes is less than the ratio between the lymphocytes and monocytes. This picture is reversed in tuberculosis, and the more it deviates from the normal, the worse the prognosis. If the neutrophils are taken as an expression of activity, the lymphocytes as an expression of resistance or healing, and the monocytes in certain definite circumstances as an expression of new tubercle formation and in others of healing, then, by following the leukocytic picture week by week, he says it is possible that an accurate index of the progress of the disease may be obtained and of the patient's reactions to it. During the eight months in which the test has been applied, a prognosis based on it has so far never proved to be wrong, though at times it has suggested a prognosis different from that based on the purely clinical examination of the patient.

Inoculation of Calf with Human Tubercle Bacillus.—In the experimental work done by Philip et al., a bull calf was separated from its mother, one of a tubercle-free herd, four days after birth and housed in a new calf house erected on hygienic lines at some distance from the other animal houses. The calf was looked after by a healthy man who had no duties in relation to the other animals. No one except the investigators and the attendant were allowed to enter the house. The calf was fed only certified milk, that is, milk produced from tubercle-free cows under most careful conditions. Ophthalmic and intracutaneous tuberculin tests were negative a week after birth. Thirteen days after birth a first dose of tubercle bacilli (10 mg.) was given in the feed, a broth culture of human tubercle bacilli of known strain being used. The dose was repeated on seven occasions at intervals during the succeeding fortnight. Thereafter, seven doses of 5 mg. were similarly given during another fortnight. The earliest signs of ill health, suggesting successful inoculation, appeared three and one-half weeks after the first ingestion of infected milk. Five weeks after the first ingestion, tuberculin tests—ophthalmic and intracutaneous—proved positive in high degree. For the next two or three months the calf showed gradual deterioration in health. The animal was killed four months after the first ingestion of tubercle bacilli and an autopsy was made. The tuberculosis was found to be confined to the glandular system (retropharyngeal, bronchial, mediastinal, mesenteric). There was no evidence of a lesion in the whole length of the gastro-intestinal canal. The infected glands showed tubercle formation from which tubercle bacilli were recoverable. The recovered organisms introduced into guinea-pigs gave rise to severe generalized tuberculosis. Microscopically the organisms recovered from the guinea-pigs showed morphologic characters different from those of the original culture.

Relation Between Glandular and Pulmonary Tuberculosis.—Of the last sixty-eight cases of pulmonary tuberculosis treated in a sanatorium, Dunlop says thirteen, or 18.9 per cent, have been associated with a history of gross glandular disease. All patients who had not been proved to have tubercle bacilli in their sputum were excluded, and only those were included who had given definite proof of previous glandular disease by the presence of scars in the neck or by exhibiting gross glandular swelling visible to the eye. Of these thirteen patients, three died within one year of the commencement of pulmonary symptoms; three within two years; one within three years; one within four years; one within five years, and one within eight years. Only three of the patients are still alive, and in these three the pulmonary disease is now apparently quiescent and has been throughout of a chronic and mild type. From these figures, it does not seem that when pulmonary tuberculosis follows gross glandular disease it is by any means invariably of a benign or retrogressive type.

Lancet, London

1: 387-438 (Feb. 22) 1930

Hero Worship in Surgery. E. W. H. Groves.—p. 387.
*Psittacosis: Review of Twenty-One Cases. A. P. Thomson.—p. 396.
Disability Following Certain Fractures. A. J. Cokkinis.—p. 402.
*Aneurysm of Heart: Case. W. S. R. Thomas.—p. 405.
Ganglionic Neuroma of Mediastinum in Child Aged Nine. W. C. Harvey.—p. 405.

Psittacosis.—Thomson points out that the association of sick parrots with unusual forms of human illness was recognized forty years ago, and a considerable number of cases of this type have since been reported at varying intervals from different parts of the world, though little attention has been given to the matter in this country. Apparently healthy birds may also occasionally be responsible for human infection.

Aneurysm of Heart.—Thomas reports the case of a man, aged 58, who died suddenly after defecation. He had not consulted a physician for years, and the only complaint he had made was of some shortness of breath and occasional pain over his heart. Postmortem examination revealed a distended pericardium, containing a large quantity of blood. The heart was removed carefully. It was larger than normal, and there was a good deal of fatty infiltration, but the most striking feature was an obviously thin walled sacculation, bigger than the half of a walnut shell, on the anterolateral side of the left ventricle. On the superior part of this sacculation was a ragged hole through which a pencil could be passed.

1: 439-498 (March 1) 1930

*Radium Treatment of Carcinoma of Breast. G. Keynes.—p. 439.
*Psittacosis: Nine Cases. T. Horder and A. E. Gow.—p. 442.
Pulmonary Asbestosis. W. B. Wood and S. R. Gloyne.—p. 445.
Sheep-Dipping and Shepherd. I. W. Hall and R. H. Ellis.—p. 448.
*Duration of Yellow Fever Immunity. E. Hindle.—p. 451.
Gluteal Aneurysm: Case. A. D. Charters.—p. 451.
Lobar Pneumonia Associated with Old Malunited Fracture of Ribs. H. A. Dunlop and M. Kokia.—p. 452.

Radium Treatment of Carcinoma of Breast.—Keynes says that, in the early cases of breast cancer, radium is the treatment of choice. The tumor disappears within a few weeks, the tissues usually become normal, and so far in his experience recurrence has not taken place in any early case. The patient is unmutilated, and may even be able to use the breast for normal lactation.

Psittacosis.—In two of the nine cases reported by Horder and Gow, an autopsy was performed. The striking changes in both cases were in the lungs. The main condition is described as a bronchopneumonia, the cytology of the alveoli in the actual areas of consolidation not showing any unusual characters. Neighboring areas of the lung are edematous. In addition there are small foci of suppuration and in some places areas of complete necrosis. Thrombosed vessels are seen in other parts of the lung, without adjacent necrosis. A peculiarity in one case was the presence in the lung of plugs of coagulated material in many of the alveoli. These are of regular, circular or oval shape, and contain no cells except shed alveolar epithelium bordering them. Among the clinical features in this series of cases the prevalence of epistaxis during the early stage of the disease, the tendency to diarrhea with collapse, and the special liability to pulmonary complications toward the end of the first week are noteworthy.

Duration of Yellow Fever Immunity.—Hindle tested the blood of a man who had had yellow fever in 1905 and found ample proof of a still existing immunity. He also presents some evidence as to the identity of the West African and Brazilian strains of this disease.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

18: 683-726 (Dec.) 1929. Partial Index

Sarcoma of Uterus: Roentgenotherapy. A. Béclère.—p. 683.
Chorio-Epithelioma with Infection of Uterus: Recovery After Vaginal Hysterectomy. Douay.—p. 686.
Adenomyoma of Ovary. P. Moulonguet.—p. 688.
Hysteria in Pregnancy: Two Cases. Suzor.—p. 690.
Puerperal Septicemia Due to Typhoid Bacilli. Le Lorier.—p. 692.
Didelphic Uterus with Double Vagina. L. Bonnet and C. Béclère.—p. 698.
Congenital Stricture of Esophagus. Lemeland and Vidal.—p. 703.
Spinal Anesthesia in Obstetrics According to Cheval's Method. M. Cheval.—p. 704.
*Delivery with Delmas Method Under Spinal Anesthesia. Weymeersch, Poulain, Wodon and de Guchteneere.—p. 705.
Phlegmon of Both Breasts. Leunckens and Pastiels.—p. 706.

Delivery with Delmas Method Under Spinal Anesthesia.—On the basis of their experience in thirteen women in whom this method was applied, Weymeersch et al. conclude that it is of value in all cases demanding a rapid delivery in the interest of mother and child. It was attempted in five instances, but in two patients version could not be performed because of hypertonia of the uterus. There were no symptoms of uterine inertia after delivery. Contraindications according to the authors are given by alterations of the cervix due either to recent infections or to scar formation. They do not consider spinal anesthesia advisable if the head is movable at the pelvic inlet.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

21: 721-772 (Dec. 6) 1929

Treatment of Tuberculosis of Bones and Joints. Rœderer.—p. 723.
Cholecystostomies with Technic of Victor-Pauchet. D. A. Pasqualis.—p. 727.
*Opening of Appendicular Abscess into Urinary Bladder. Montant.—p. 732.
Ankylosis of Elbow Due to Impacted Epitrochlear Fragment Adherent for Six Months: Transolecranal Arthrotomy. R. Massart.—p. 737.
Value of Mercurochrome. G. Léo.—p. 743.
Treatment of Simple Boils with Mercurochrome and Vaccines. G. Léo.—p. 753.
Staphylococcemia. G. Léo.—p. 761.
Irreducible Dislocation of Elbow. P. Muller.—p. 765.
Cervical Cancer: Radium Therapy with Local Cure: Vertebral Metastasis. E. Bressot.—p. 769.

Opening of Appendicular Abscess into Urinary Bladder.—Montant reports this occurrence in a child, aged 9. She had been suffering from abdominal pain for five days prior to examination and had a high temperature. There were no generalized symptoms and conservative treatment was considered advisable. Her condition did not improve within the next five days and dysuria coincident with symptoms of peritoneal involvement was noted. Two days later the temperature suddenly dropped and pus was noted in the urine. This condition persisted for several years and recovery was then rapidly effected. Seven months later, appendectomy was decided on. There were no adhesions and the appendix had completely disappeared.

22: 1-36 (Jan. 10) 1930

*Chronic Thromboses of Spleen. S. de Dziembowski.—p. 6.
Traumatic Coxa Vara: Late Results. Mayet.—p. 12.
Congenital Anomaly of Ascending Colon. Petit de la Villéon.—p. 18.
Vesiculography. R. Le Fur.—p. 21.
Cancer of Breast: Partial Amputation. R. Bonneau.—p. 29.
Persistent Salivary Fistula: Three Cases Treated by Exeresis of Auriculotemporal Nerve According to Leriche. E. Bressot.—p. 34.

Chronic Thromboses of Spleen.—After discussing the results reported in the literature and on the basis of his personal experience in four patients, de Dziembowski concludes that splenomegaly due to chronic thrombosis may be considered a disease entity. It is caused by traumatic injury, infections or inflammations of the peritoneal cavity; diseases of the veins likewise can lead to thrombosis of the splenic vein. In this event, the spleen is the only organ presenting signs of passive congestion. Splenomegaly and hemorrhages originating from the collateral circulation are the characteristic symptoms of infection. The collateral circulation which is formed after occlusion of the splenic vein can affect the stomach, esophagus and intestines, and even the pharynx or the nose. According to the author, splenectomy is indicated with persistence of hemorrhages and anemia; it is contraindicated in portal hypertension or infection of other organs. Although the operation is difficult because of dilatation of the veins, especially in the abdominal adhesions, de Dziembowski is an advocate of surgical intervention. It was successful in three of his four patients.

Presse Médicale, Paris

38: 97-112 (Jan. 22) 1930

*Spinal Cord and Typhoid. V. de Lavergne and P. Kissel.—p. 97.
Muscular and Respiratory Function Tests in Persons with Hepatic Disease. G. Parturier, Fauqué and Manceau.—p. 99.
Respiration in Isolated Surviving Head of Fishes. L. Binet.—p. 101.

Does Spinal Cord Harbor Typhoid Bacilli?—De Lavergne and Kissel contend that the spinal cord may harbor typhoid bacilli to the same extent as any other organ, especially the liver and the kidneys. Clinically, signs of involvement of the pyramidal tract are frequently reported in the literature. These symptoms of myelitis with paralysis as a complication of typhoid may be explained by the theory of Chantemesse and Widal that a few bacilli surviving in an organ may liberate toxins which lead to hypertrophy, local suppurations or other disorders. Involvement of the pyramidal tract to a greater or lesser extent is therefore, according to the authors, an almost unfailing accessory symptom of typhoid.

38: 113-128 (Jan. 25) 1930

Artificial Pneumothorax: Temperature Reaction. R. Amsler and H. Lenfantin.—p. 113.
*Suboccipital Spinal Puncture. W. Pires.—p. 115.
Controllable Spinal Anesthesia. R. Rivoire.—p. 117.
Types of Epilepsy. P. Merklen.—p. 123.

Suboccipital Spinal Puncture.—On the basis of a consideration of the literature and his personal experience covering 1,528 spinal punctures by suboccipital intervention, Pires advises this method in preference to lumbar spinal puncture. Subsequent effects of greater or lesser importance have been noted in 20 per cent of 4,500 lumbar punctures which are recorded in his statistics, whereas not a single fatal outcome was reported by the suboccipital method. This was applied in 140 children and in ten patients more than 70 years of age. Only fifteen patients complained of headaches following the withdrawal of cerebrospinal fluid by this method. Of ten patients in whom fluid was withdrawn by lumbar spinal puncture and in whom complications ensued, not one had a reaction after withdrawal of fluid one month later under identical conditions by suboccipital passage. In fifteen patients suboccipital withdrawal had been well tolerated; five of these showed severe symptoms after withdrawal of fluid one month later by lumbar puncture. Pires favors a horizontal position for the puncture, although it is equally applicable if the patient is sitting. He advises puncture immediately below the occipital bone and points to the importance of maintaining the median direction. The depth to which the needle penetrates is variable and dependent on several factors. Hemorrhage is rare; it has been noted in thirty-five patients of the group of 1,528. There was no need to apply local anesthesia and the patients were invariably able to walk after the puncture. According to Pires, suboccipital puncture is invaluable as a guide in diagnosis by roentgen examination in medullary diseases. Ventriculography is likewise simplified by this method. Twenty cubic centimeters of air suffices if injected suboccipitally as compared to 80 cc. needed if injection is by lumbar puncture. It is of therapeutic value in cerebral tumors for relieving intercranial pressure, and in cases of serous meningitis it makes possible direct injection of tetanus antitoxin or certain drugs into the brain. The advantage of suboccipital puncture, according to Pires, lies in the fact that this region is less in danger of subarachnoid drainage. The dura is less distended and the pressure is low, at times even negative. Under these conditions, loss of fluid after withdrawal of the needle does not occur.

Revue Française de Gynécologie et d'Obst., Paris

24: 721-784 (Dec.) 1929

*Low Cesarean Section. A. Grosse.—p. 721.
Chronic Gonococcus Infection: Treatment by Subcutaneous Injection of Living Cultures. A. Loeser.—p. 732.
Care During Delivery and Puerperium. R. de Guchteneere.—p. 742.

Low Cesarean Section.—Grosse favors this technic and discusses the results of his personal experience in thirty-three cases, which together with his previously reported operations bring his statistics up to forty-three cases. In forty-one patients low conservative section was done without complications ensuing and with survival of the child. Hysterectomy following the low cesarean section was done in two patients, one of whom died of an undetermined cause. One child died whose mother had severe symptoms of pregnancy toxemia. Although they were operated on long after rupture of the membranes, recovery and cicatrization of the wound took place without complications ensuing in several patients. Six patients showed an increase in temperature after the operation. One of these contracted pneumonia, a second one had had an intestinal infection previous to the operation and a third was suffering from malaria.

Schweizerische medizinische Wochenschrift, Basel

60: 117-140 (Feb. 8) 1930. Partial Index

Dangers in Surgical Operations. H. Heusser.—p. 117.
*First Anatomic Observations in Hereditary Atrophy of Optic Nerve (Leber's Disease). K. Rehsteiner.—p. 122.
Mode of Action of Silver Therapy. H. Koller-Aeby.—p. 124.
Posterior Dislocation of Humerus. G. Peillon.—p. 134.

Hereditary Atrophy of Optic Nerve (Leber's Disease).—Rehsteiner asserts that hereditary atrophy of the optic nerve was first described in 1871 by Leber and is therefore sometimes designated as Leber's disease. The disturbance is hereditary, but the persons affected with it usually have normal eyes and vision in early life. In the second or in the third decade of their lives visual disturbances develop, which are progressive for some time and then remain stationary. Leber discovered the hereditary character of the disease. It was also noted that it occurred more frequently in men than in women. In one family the sisters of the men who were affected transmitted it to their offspring, whereas they themselves did not contract it. The author reports the result of the anatomic examination of a patient who was affected with hereditary atrophy of the optic nerve. Up to the age of 39 the man had had normal vision. Then suddenly visual disturbances developed and examination revealed a scotoma, which in the course of the following months gradually affected a larger area. The two eyes were affected in almost the same manner. However, the periphery of the visual field was unimpaired. The patient died several years later of encephalorrhagia. Microscopic examination of the optic nerve revealed a primary atrophy of the nervous elements and a proliferation of the neuroglia. The arrangement of the connective tissue likewise showed marked changes. The pathologic conditions in the bulbus oculi were less severe than those in the optic nerve, but an atrophy of the ganglion cells in the central part of the retina was noted. The location of the atrophic parts in the retina and in the optic nerve indicated that the atrophy affected mainly the papillomacular bundle.

Policlinico, Rome

37: 125-164 (Jan. 27) 1930. Practical Section

Forms of Conjunctivitis. F. Mezzatesta.—p. 125.
Submucous Cystic Fibroma of Hematic Content. R. Bompiani.—p. 130.
*A Seasonal Epidemic of Undulant Fever. C. Gazzarini.—p. 133.
Heliotherapy in General Surgery. G. Cairo.—p. 137.

Seasonal Epidemic of Undulant Fever.—Gazzarini states that in a commune in which an epidemic of fifty-three cases occurred there were more than 200 families that owned a goat, and as cow's milk was scarce, extensive use was made of goat's milk, some persons having the "bad habit" of drinking the crude milk. The author found on inquiry that there were few abortions among the herds of privately owned goats. Cases of mastitis were rare. The epidemic of undulant fever was preceded by an epidemic of typhoid (thirty cases, with high mortality). Soon after the goats brought forth young in March and April, the cases of undulant fever began to mount slowly (April, six cases). The climax was reached in May with twenty cases, whereupon the incidence gradually declined during the period from June to October, there being no cases after November, in which month the milk output is much diminished. Of the fifty-three persons affected, twenty-six were men; twenty, women, and seven, children, aged from 8 to 12 years. No case developed in nursing infants, although some nursing mothers were affected. The aged were slightly affected, although there was one case in a woman, aged 70. Several persons who contracted the disease admitted that they had drunk crude milk from their own goats, whose blood on analysis proved to be infected. In five instances, both the father and the mother were affected, while the children remained immune. Only one spouse (the first to become ill) had become infected by drinking crude milk. While the second spouse may possibly have contracted the disease through contact with infectious material, it is also logical to suspect that he (or she) may have become infected through coition, for it is known that undulant fever may be transmitted in that manner. The vagina frequently harbors *Brucella melitensis*. The author found vaccinotherapy the most effective means of combating undulant fever, though it sometimes failed. Quinine and arsenic he did not find effective. A change of air or location is beneficial in the subfebrile stage, but is of little or no effect in the first stage of the disease.

37: 1-52 (Jan. 15) 1930. Surgical Section

*Phases in Development from an Adenoma to a Cancer of the Body of the Uterus. U. La Monica.—p. 1.
*Carbohydrate Metabolism in Blastoma Cell. V. Mauro.—p. 6.
Absorption Capacity of Normal and of Pathologically Changed Gallbladder. P. Valdoni.—p. 8.
Surgical Treatment of Echinococcus of Lung. F. Vicentini.—p. 32.

Phases in Transition of Adenoma into Cancer of Body of Uterus.—La Monica thinks that his case may furnish a valuable though modest contribution to the "vexatious question" of the pathologic entity of the adenoma and its relations to the adenocarcinoma of the body of the uterus. In the transition of the adenoma to the adenocarcinoma, one of the first phases is the disappearance of the secretion and of the stratification of the glandular epithelium, so that the discovery in the same preparation of these two changes not only awakens the suspicion of beginning malignant degeneration but even raises the question whether it does not already exist. Another point is the simultaneous discovery of a tubular adenocarcinoma and areas of metaplasia in the pavement epithelium, which strengthens the idea of modifications of the cylindric epithelium.

Carbohydrate Metabolism in Blastoma Cell.—Mauro, on studying the glycolytic properties of normal and of tumor tissues, found in addition to this property a more marked constant amylolytic activity in the tumor tissues, which he ascribes to the fact that when, in the same tissues, the glycolytic potency is inactivated at 60 C. (140 F.) for one hour, the amount of dextrose is increased. This increase is doubtless due to the glycogen contained in the tissue fragments that is split by the aforementioned amylolytic capacity.

Riforma Medica, Naples

46: 41-79 (Jan. 13) 1930

Neurovegetative Dystonia of Hysteroneurasthenic Type. F. Galdi.—p. 43.
*Roentgenotherapy in Gonococcal Complications. C. Maderna.—p. 49.
Physiology of Visceral Innervation in Man. G. Pieri and M. Lapenna.—p. 53.
Possible Significance of Absence of Alimentary Magnesium Chloride and Greater Frequency of Carcinomas. C. Marchi.—p. 55.

Roentgenotherapy in Gonococcal Complications.—Maderna has found that roentgenotherapy presents, in gonococcal complications, many possibilities of success when irradiation is applied promptly. If the dose and the technic are adequate, irradiation need cause no anxiety from either the local or the general point of view. No untoward effects, such as roentgen intoxication, fever or nausea, are observed; on the contrary, in patients with fever, the fever disappears with the first irradiation. Roentgen irradiation does not show the same action in all gonococcal complications, for, while it seems to have a beneficent and prompt action in the evolution of distant complications (arthritis), the effects are less rapid and beneficent in complications due to the diffusion of the gonorrheal process. The subjective inflammatory manifestations of this process, such as the local pain and the sense of tension, diminish rapidly and disappear entirely with the first or second irradiation, after an exacerbation that continues for a few hours.

Archivos Españoles de Pediatría, Madrid

13: 705-768 (Dec.) 1929

*Acute Digestive and Nutritional Disturbances Caused by Latent Otitis Media in Infants. S. E. Burghi.—p. 705.
Achondroplasia of Familial Type in Two Brothers: Probable Origin in Heredosyphilis. A. Moreno Salmerón and F. Rosales García.—p. 715.

Digestive and Nutritional Disturbances Caused by Otitis Media in Infants.—Burghi states that latent otitis media causes acute digestive and nutritional disturbances in infants, which are most serious in artificially fed infants. These disturbances are manifested by frequent vomiting, intolerance to food, fever and severe diarrhea, similar to that which is observed in the grave forms of dyspepsia. As a result of these disturbances and of toxins elaborated in the middle ear in otitis media, an acute dehydration of the tissues is produced. When the dehydration reaches a certain level, acidosis develops. The treatment consists in bilateral paracentesis and restoration of fluids in the body tissues. The author advises an examination of the ears in cases of acute digestive disturbances associated with dehydration and acidosis, especially in cases which develop during the winter, and early treatment of the otitis media if pus is found in the middle ear. He reports a case in which he achieved good results with this treatment.

Deutsche medizinische Wochenschrift, Berlin

56: 211-254 (Feb. 7) 1930

Pathogenesis of Eczema. G. A. Rost.—p. 211. C'td.
Inefficacy of Peroral Administration of Mixture of Insulin with Sodium Desoxycholate. F. Umber and M. Rosenberg.—p. 213. C'cn.
Clinical Observations on Psittacosis. G. Grunwald and F. Meyer.—p. 215. C'cn.
Clinical Aspects of Psittacosis. G. Adamy.—p. 217.
*Postvaccinal Encephalitis: Pathogenesis and Prophylaxis. E. Paschen.—p. 219.
So-Called Rheumatic Disorders of Vertebral Column: Spondylitis Deformans and Spondylarthritis. Krebs.—p. 220. C'td.
*Relation Between Trauma and Dementia Paralytica. W. Leibbrand.—p. 222.
Resorptive Inhalation Therapy with Special Consideration of Treatment of Seasickness. E. Goerisch.—p. 224.
Causal Therapy of Acute Osteomyelitis. Canon.—p. 227.

Postvaccinal Encephalitis.—Paschen points out that different theories have been advanced on the pathogenesis of postvaccinal encephalitis and that various measures have been adopted for its prevention. In Switzerland a vaccine lymph that has not been passed by inoculation through rabbits is being advocated, because some authorities assume that postvaccinal encephalitis is caused by vaccines developed by inoculation of rabbits. However, in Spain a vaccine lymph is employed that has been developed in several passages through rabbits and reputedly has never caused encephalitis. When this lymph was used in Holland, a number of the vaccinated persons developed encephalitis. After that the vaccine that is now advocated in Switzerland was used in the Netherlands, but again there occurred cases of encephalitis. A vaccine lymph from Japan, which likewise had not been passed through rabbits, did not entirely prevent encephalitis. It was therefore assumed that the pathogenic agent of postvaccinal encephalitis, or at least some etiologic factor, must exist in the person vaccinated. Consequently it is not probable that a special vaccine will prevent postvaccinal complications. Only one vaccination incision has also been advocated, but this measure likewise did not prevent postvaccinal encephalitis. The author concludes that nothing definite is as yet known concerning the etiology of this condition, which has been observed in many different countries. It has been found, however, that postvaccinal encephalitis may be counteracted by an early injection of immune serum from a newly vaccinated person.

Relation Between Trauma and Dementia Paralytica.—Leibbrand thinks that a trauma may initiate dementia paralytica. He reports the case of a woman, aged 47, who developed this condition following a gynecologic operation. A relation between the operative trauma and the beginning of the dementia paralytica appeared probable. The author also reviews several cases from the literature in which a trauma was followed by dementia paralytica.

Jahrbuch für Kinderheilkunde, Berlin

126: 127-252 (Jan.) 1930

Mother's Milk and Cow's Milk and Their Wheys: Pharmacologic and Chemical Study. W. Catel.—p. 132.
*Hereditary Transmission of Immunity to Scarlet Fever. J. Paunz and E. Csoma.—p. 181.
Changes in Sugar Content of Blood and Cerebrospinal Fluid in Cerebral Diseases in Children. A. Mader.—p. 187.
*Bacillus Breslaviensis Infection in Nursling. Z. Teveli.—p. 197.
*Large Cell Hepatosplenomegaly. E. Stransky.—p. 204.
Congenital Syphilis: Present Status of Peroral Treatment. P. von Kiss.—p. 211.
*Athyreosis Without Myxedema in Nurslings. N. M. Nikolaeff and J. W. Zimbler.—p. 222.
Nature of Dick's Scarlet Fever Toxin. R. Lopatizki.—p. 241.

Hereditary Transmission of Immunity to Scarlet Fever.—Paunz and Csoma state that the hereditary transmission of immunity to scarlet fever occurs through the placenta exclusively. In both the blood of the umbilical cord and the serum of new-born infants who had not yet received mother's milk, they found large quantities of scarlet fever antitoxin. Resorption of antitoxin from colostrum and from mother's milk could not be demonstrated. The type of feeding did not seem to affect the duration of the acquired immunity to scarlet fever.

Bacillus Breslaviensis Infection in Nursling.—From the pus of subcutaneous abscesses and from the cerebrospinal fluid of an infant with furunculosis and suppurative meningitis, Teveli obtained pure cultures of *B. breslaviensis*. In a review of the literature he was unable to find the report of another case in which this organism had produced a pyogenic infection.

Large Cell Hepatosplenomegaly.—Stransky reports an instance of large cell hepatosplenomegaly in three infants of the same family. All three infants died during the first year of life from cachexia and intercurrent infection. The author objects to the terms "Gaucher's disease" and "Niemann-Pick's disease" and recommends that they be replaced by the term "large cell hepatosplenomegaly."

Athyreosis Without Myxedema.—Nikolaeff and Zimbler state that in the postmortem examination of an infant aged more than 1 year who had been hospitalized on two different occasions and in whom myxedema had not been noted, the thymus was found to be small and the thyroid to be completely absent. Although the absence of myxedema might be explained on the basis of a passage of thyroid hormone to the infant through the mother's milk, cytologic changes of such a nature were found in the spleen, lymph nodes and connective tissue that the authors believe that the oxidation processes were compensated by the system of active mesenchyme.

Klinische Wochenschrift, Berlin

9: 241-288 (Feb. 8) 1930

Acidosis in Patients with Renal Diseases. F. Mainzer.—p. 241.
New Theory on Coagulation of Blood. H. J. Fuchs.—p. 243.
*Hormones of Anterior Lobe of Hypophysis. B. Zondek.—p. 245.
Urorubin: A New Pigment of Urine. M. Weiss.—p. 248.
Chemical and Colloidal Processes That Accompany Hypertrophy and Atrophy of Skeletal Muscle and of Cardiac Muscle. H. Wassermeyer.—p. 251.
Causes and Significance of Postoperative Acidosis. E. Raab and Wittenbeck.—p. 255.
*Treatment of Exophthalmic Goiter with Ergotamine. R. Platt.—p. 258.
Treatment of Eclampsia with Thyroxin. Hammerschlag.—p. 261.
Principal Differences in Chemical Composition of Fluids Contained in Vesicles and of Fluids in Skin Tissues Excised Intra Vitam. J. Wohlgemuth and G. Scherk.—p. 261.
Idem. E. Urbach.—p. 261.

Hormones of Anterior Lobe of Hypophysis.—Zondek states that following repeated injections of fluid expressed from the anterior lobe of the hypophysis into rats, Evans observed an enormous growth of these animals. The sex hormone of the anterior lobe of the hypophysis does not have this influence. Consequently the author concludes that besides the sex hormone the anterior lobe of the hypophysis also secretes a hormone that influences the processes of growth. Other investigators observed that the specific dynamic action of food is regulated by the anterior lobe of the hypophysis. It was found that a certain extract of the anterior lobe effected a decrease in the metabolic rate and an increase in the specific dynamic action.

The author further discusses the functions of the sex hormone of the hypophysis. Experiments revealed that the sex hormone consists of two different substances. The first one influences the ripening of the follicle. The other substance effects the formation of the corpus luteum. The author gives a diagrammatic sketch showing the action of the four hormones of the anterior lobe of the hypophysis; namely (1) the hormone affecting growth; (2) the hormone that influences the ripening of the follicle; (3) the hormone that causes development of the corpus luteum, and (4) the hormone influencing metabolism.

Treatment of Exophthalmic Goiter with Ergotamine.—Platt first reviews the literature on the efficacy of ergotamine in the treatment of exophthalmic goiter. He finds contradictory statements by the various authors, some reporting favorable and others unfavorable results. He thinks it probable that some authors did not consider the influence of rest and of psychologic factors. He made careful observations on several patients. With the exception of a temporary decrease in the frequency of the pulse rate, he did not observe improvement of the basal metabolism that could be credited to the action of ergotamine. In one patient, who was given large doses, a severe vascular spasm developed in the lower extremities. In spite of the fact that gangrene was avoided with the aid of frequent injections of scopolamine, this case proved, nevertheless, that ergotamine may cause serious complications, without essentially influencing the disease against which it is used.

Medizinische Klinik, Berlin

26: 153-188 (Jan. 31) 1930

Tonsillitis and Its Septic Sequelae. W. Uffenorde.—p. 153.
Gerson's Diet: Resemblance to Diets Prescribed Formerly by Heinrich Lahmann, Ragnar Berg and Bircher-Benner. E. Müller.—p. 156.
*Pathogenesis and Therapy of Angiospastic Diathesis in Extremities. K. Doppler.—p. 158.
Estimation of Nervous Sequelae Following Traumas. O. Maas.—p. 162.
*Practical Considerations on Vaccination. W. Kaupe.—p. 163.
Experimental Studies on Influence of Ovarian Hormone on Secretion of Mammary Glands. G. Abraham.—p. 164.
Masked Form of Chronic Cardiac Insufficiency. H. Fendel.—p. 164.
*Simple Technic for Raw Spleen Therapy in Tuberculosis of Joints. Ropschitz.—p. 166.

Pathogenesis and Therapy of Angiospastic Diathesis in Extremities.—In the term angiospastic diathesis Doppler combines such disorders as intermittent claudication, presenile and senile gangrene and Raynaud's disease. He discusses particularly intermittent claudication. Formerly it was assumed that this disease was caused by arteriosclerotic changes in the vessels. Recent investigations have revealed, however, that such factors as fatty degeneration, calcification and hyaline degeneration are not involved, but that the changes affect mainly the tunica intima, whose cells proliferate and gradually close the entire lumen of the vessels. Beside these anatomic changes, functional factors are involved, such as an increased tonus of the sympathicus which leads to vasoconstriction. The author describes three phases of angiospastic diathesis. In the first phase there exists a marked irritation of the sympathicus, which effects a compression of the vessels, thereby cutting off the arterial blood and likewise causing congestion of the veins. The pulse becomes weak and a livid discoloration exists. In the beginning there is still a tactile sensibility. In case of longer duration of the compression the tactile sensibility disappears. The deeper sensibility is intact. This first phase is reversible. Depression of the tonus of the sympathicus is followed by dilatation of the arteries and by hyperemia. In the second phase there is a maximal irritation of the sympathicus. The arterial compression is severe. Pulsation is not perceptible. The limb has a deathlike pallor and is cold. The tactile sensibility is disturbed or entirely absent. The deeper sensibility is unimpaired. The condition is extremely painful and if it persists for several hours it becomes irreparable and the third phase or local necrosis follows. In discussing the therapy of angiospastic diathesis the author comes to the conclusion that sympathectomy is not the best method. Instead he advises chemical exclusion of the sympathicus by means of phenol derivatives. Application of heat, diathermy, electrical treatment and massage should be avoided, because they increase the spasm and finally cause gangrene. The patient should not use stimulants. Highly seasoned food, stimulating drinks and smoking, as well as nervous excitement, are harmful. Complete rest is absolutely necessary.

Practical Considerations on Vaccination.—Kaupe advocates three measures that will help in overcoming the opposition to vaccination. The parents should be informed that the vaccinated child will develop a fever seven or nine days after the vaccination, and that in some instances the increase in temperature may become manifest as early as the fifth or sixth day. The author thinks that if the parents are told beforehand, unnecessary anxiety will be avoided and quackery will not be resorted to. It is further pointed out that vaccinations are usually performed between May and September, that is, during the time of the greatest heat. The author's experiences have convinced him that it is better to vaccinate at other times. The third factor discussed is the necessity of providing protection for the area of vaccination. The author advocates the use of a special vaccination plaster. The plaster is perforated and thus does not exclude the air. However, it prevents the child from scratching and infecting the scarified area.

Simple Technic for Raw Spleen Therapy in Tuberculosis of Joints.—Ropschitz employed raw spleen in the treatment of patients with tuberculosis of the joints. The patients were given daily from 50 to 100 Gm. of raw spleen, and they also received a strengthening, salt-free diet. Heliotherapy was likewise instituted and the diseased joint was immobilized. Improvement could be noticed after ten days. Later, however, the patients showed aversion to the raw spleen. Therefore the author gave the pressed juice of raw spleen in wafers, each wafer containing 2 Gm. By ingesting five wafers three times daily the patients received 30 Gm. of pressed juice of raw spleen. The author asserts that this method is simple and that the patients' appetite does not become impaired. Consequently it is possible to continue the therapy for longer periods. He observed that patients who had undergone other treatment without effect improved rapidly when placed on a raw spleen diet. Secreting fistulas closed, the general condition improved and the weight increased.

Monatsschrift für Kinderheilkunde, Leipzig

46: 1-96 (Jan.) 1930

Education of Defective Children. A. Czerny.—p. 1.
Surface Tension of Urine in Children. A. Borissowa.—p. 8.
Foreign Bodies in Vagina in Girls. H. Offergeld.—p. 29.
*Exudative Diathesis: Treatment. J. Vas.—p. 43.
*Effect of Injection of Serum on Eosinophil Reaction in Exudative Diathesis. A. Strobl.—p. 49.
Differentiation of Mother's Milk and Cow's Milk. B. I. Kuroiwa and M. Konishi.—p. 62.
Treatment of Congenital Torticollis with Injections of Pepsin in Pregl's Solution. S. Rosenbaum.—p. 64.

Exudative Diathesis: Treatment.—In a roentgen examination of the thymus in a large number of children with exudative diathesis, Vas noted that the thymus shadow was frequently much larger than in children of the same age without exudative diathesis. Thinking that there might be a causal relationship between the enlarged thymus and the exudative diathesis, he treated thirty-six children, aged from 2 months to 13 years, in all of whom exudations had been present for a long time and had been refractory to dietary and ointment therapy, by means of high voltage roentgen irradiation of the thymus. The condition of many of the patients improved and some of them were permanently cured. The author believes that his good results are to be explained on the basis of the results of experiments on animals, in which it has been demonstrated that high voltage roentgen irradiation of the thymus decreases the alkali content of the body.

Effect of Injection of Serum on Eosinophil Reaction in Exudative Diathesis.—In a study of the changes produced in the blood picture by the injection of 0.5 cc. of serum in eleven persons with exudative diathesis, Strobl noted a delayed eosinophil reaction. As the eosinophils play an important part in the decomposition of parenterally administered protein, this fact confirms and in part explains the well known hypersensitivity of persons with exudative diathesis to all forms of antigens.

Münchener medizinische Wochenschrift, Munich

77: 173-212 (Jan. 31) 1930

*Demonstration of Tubercle Bacilli in Surgical Tuberculosis. M. Knorr and H. Friedrich.—p. 173.
Active Immunization Against Diphtheria with Ramon's Diphtheria Toxoid. M. P. Isabolinski and W. J. Gitowitsch.—p. 175.
Acute Stenosis of Larynx: Causes, Course and Treatment. P. Frohn.—p. 177.
Clinical Aspects and Treatment of Incontinentia Urinae in Women. F. von Mikulicz-Radecki.—p. 180. C'cn.
*Efficacy of Liver Therapy in Spinal Symptoms of Pernicious Anemia. R. Blaschy.—p. 183.
Tribromethanol in Treatment of Traumatic Tetanus. F. Knop.—p. 184.
Danger in Employing Glass Syringe for Pleural Puncture. G. Zimmermann.—p. 186.
Simple Intestinal Irrigator: Its Construction and Application. Pfleiderer.—p. 186.
Spontaneous Expulsion of Bougie from Urinary Bladder: Case. W. Apfelstedt.—p. 187.
Indications for Operative Treatment of Phimosis in Children. Z. von Barabás.—p. 187.

Demonstration of Tubercle Bacilli in Surgical Tuberculosis.—Knorr and Friedrich assert that in chronic diseases of bones and joints, a correct diagnosis is sometimes difficult. In order to determine the relative reliability of microscopic examination, cultivation and animal inoculation the authors made careful tests on materials from patients who were under constant clinical observation. Their studies extended over several years. In this article they discuss particularly the demonstration of tubercle bacilli by means of animal inoculation. They assert that the diagnosis of surgical tuberculosis on the basis of animal inoculation is correct in 95 per cent of the cases. The inoculation of lymph nodes according to Knorr's method reduces the duration of this test considerably. If this method is employed the test is usually completed in from ten to twenty-eight days, and this more rapid method does not impair the correctness of the results. Cultivation failed in ten cases in which animal inoculation gave positive results. In no case in which the animal test had been negative did cultivation yield tubercle bacilli. It was also observed that tubercle bacilli which had been treated with sulphuric acid could be demonstrated more readily by inoculation into animals than by cultivation.

Efficacy of Liver Therapy in Spinal Symptoms of Pernicious Anemia.—Blaschy points out that although liver therapy improves the condition of the blood, some authors have noted that it often fails to influence the spinal symptoms of pernicious anemia. Other authorities, however, observed improvement of the nervous disturbances following treatment with liver. The author reports the case of a woman, aged 34, who had a severe pernicious anemia with spinal symptoms. After a prolonged treatment with liver extract not only the condition of the blood but also the spinal symptoms had improved. Hypotension and sensory disturbances were favorably influenced. The severe ataxia had improved to such an extent that the patient could walk several kilometers. The author states in conclusion that the improvement of the nervous disturbances does not indicate that destroyed nerve centers were restored by the liver treatment but rather that the toxins of anemia also caused reparable injuries. He thinks that the liver therapy probably caused an elimination of the toxins of anemia, or that it exerted its influence on the spinal symptoms by improving the blood supply and the lymph circulation. He stresses that liver therapy is the more effective, the earlier it is begun.

Strahlentherapie, Berlin

35: 1-192 (Jan. 9) 1930

Cooperation of the Sciences. W. Kossel.—p. 5.
Comment on Jesionek's "Lichtbiologie." C. Dorno.—p. 22.
Cancer of Uterus: Great Importance of Early Recognition. R. T. von Jaschke.—p. 47.
Biologic Dosage in High Voltage Roentgen Therapy. H. Holfelder.—p. 54.
Cadmium Photometer. F. Linke.—p. 62.
Measurement of Roentgen Rays by Means of Sabouraud-Noiré Dosimeter. H. T. Schreus.—p. 72.
Infra-Roentgen (Grenz) Rays: Dosage and Clinical Use. W. Scholtz and J. Dörffel.—p. 83.
Infra-Roentgen (Grenz) Ray Therapy: Determination of Size of Irradiation Field. B. Spiethoff and H. Berger.—p. 90.
Cancer of Skin: Results of Roentgen Treatment. G. Stümpke.—p. 98.
Action of Electric Current on Epithelial and Cancer Cells. E. Delbanco.—p. 103.
Superiority of Roentgen Over Thallium Epilation. H. Ritter and C. L. Karrenberg.—p. 116.
Roentgen Injury from Epilation of Head of Child. R. Habermann.—p. 123.
*Chronic Recurrent Erysipelas: Actinotherapy. L. Böhmer.—p. 130.
*Chronic Paronychia: Roentgen Treatment. R. Rohrbach.—p. 136.
*Lupus Vulgaris: Treatment with Gerson's Diet. S. Bommer.—p. 139.
Id.: Treatment. W. Brandt.—p. 149.
*Id.: Surgical and Finsen Treatment. A. Kropatsch.—p. 158.
Leprosy in Rhine Province. G. H. Klövekorn.—p. 172.
Ditmarsch Disease: History, Spread and Prevention. W. Schönfeld.—p. 182.

Chronic Recurrent Erysipelas: Actinotherapy.—Böhmer gives the clinical histories of ten cases of chronic recurrent erysipelas in which cure was effected by irradiation of the entire body. He emphasizes the importance of a preliminary determination of the sensitivity of the patient's skin to ultraviolet rays and gives an illustrated description of an instrument that he uses for this purpose. The treatment is begun with short weak irradiations whose duration and intensity are gradually increased. The author explains the cures on the basis of an esophylactic action of ultraviolet rays, because in several of the patients in whom the disease process was localized on the face, improvement was noted following irradiation of only the body.

Chronic Paronychia: Roentgen Treatment.—In chronic paronychia, Rohrbach has found roentgen irradiation more effective than any other form of treatment. He gives 12 X with 2 mm. aluminum filter (measured with a Sabouraud-Noiré photometer according to Hans Meyer's method) and repeats this irradiation six weeks later. In cases in which the paronychia recurs, two more irradiations are given, one three and one six months after the first irradiation. The hand is carefully covered in such a manner that the terminal phalanx of the diseased finger is exposed to the rays but the joint is not.

Lupus Vulgaris: Treatment.—Bommer describes the Gerson diet and states that he has obtained excellent results with it in the treatment of lupus vulgaris. With this diet he has cured his patients in from six to eighteen months. One good feature of this form of treatment, particularly in cases of lupus of the face, is the thinness of the resulting scar.

Lupus Vulgaris: Surgical and Finsen Treatment.—On the basis of a study of the clinical histories of 1,332 patients treated at the Lupus Institute of Vienna from 1920 to 1927, Kropatsch discusses the advantages and disadvantages of surgical treatment and of Finsen treatment. He believes that from the standpoints of cosmetics and speed and permanence of cure, the best results are obtained from a combination treatment with a caustic ointment and Finsen light.

Wiener klinische Wochenschrift, Vienna

43: 193-224 (Feb. 13) 1930

Small Endemic of Psittacosis in Vienna in August, 1929. O. Weltmann.—p. 193.
Psittacosis: Report of Three Cases Occurring in Graz in May, 1929. J. Widowitz.—p. 195.
Experimental Studies on Ventricular Fibrillation. L. Braun and B. Samet.—p. 196.
Diphtheria Vaccination. J. Siegl.—p. 198.
*Effect of Irradiation of Spleen on Reticulo-Endothelial System. F. Schürer-Waldheim.—p. 201.
*Osmotic Resistance of Erythrocytes Following Removal of Spleen. W. Kasansky.—p. 206.
Clinical Experiences on Effect of Harmine on Postencephalitic Parkinsonism. A. Rosenberger.—p. 207.
Constitutional Types of Idiocy During Childhood. R. Neurath.—p. 208.
Combating of Cancer. R. Blum.—p. 209.

Effect of Irradiation of Spleen on Reticulo-Endothelial System.—Schürer-Waldheim points out that recovery after local or generalized infections is largely dependent on the patient's general condition. If the organism is in a good general condition, the reticulo-endothelial apparatus has an increased functional activity. The resorptive organs and particularly the macrophage apparatus are especially active. Careful investigations convinced the author that irradiation of the spleen increases these functions and thus heightens the organism's resistance to infections.

Osmotic Resistance of Erythrocytes Following Removal of Spleen.—Kasansky first reviews the literature on the changes in the resistance of erythrocytes caused by

removal of the spleen. He then reports his observations on patients who had to undergo splenectomy. The resistance of the erythrocytes to a hypotonic solution of sodium chloride was tested before and repeatedly after the operation. It was found that the resistance was increased shortly after the splenectomy had been performed, as well as after longer intervals (from two to two and one-half years).

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

97: 1-134 (Jan. 31) 1930

Alfred Hegar: Review of His Scientific Work. E. Kehrer.—p. 1.
*Hydrogen Ion Concentration of Blood During Early Pregnancy and Puerperium. H. Siedentopf and W. Eissner.—p. 17.
*Nature of Passage of Electrolytes Through Placenta. W. Krane.—p. 22.
*Duration of Pregnancy in Cases in Which Blood Groups of Mother and Child Differ. C. Goroncy.—p. 30.
Congenital Dislocation of Hip as Birth Trauma. E. Puppel.—p. 39.
Papilla Index of Leukoplakia of Mucosa of Cervix Uteri. H. Hinselmann.—p. 43.
Surgical Diathermy in Gynecology. R. Dyroff.—p. 54.
Angioma of Placenta: Genesis. A. Walter.—p. 89.
Simultaneous Torsion of Pedicle of a Right-Sided Hydrosalpinx and Isolated Torsion of Left Normal Uterine Tube. R. Börner.—p. 93.

Hydrogen Ion Concentration of Blood During Early Pregnancy and Puerperium.—Having previously demonstrated that the hydrogen ion concentration of the blood is decreased during the latter half of pregnancy, Siedentopf and Eissner completed their study by determining the hydrogen ion concentration of the blood of twenty-one normal gravidas during the first half of pregnancy and of thirty normal puerperas. They found that even in the first half of pregnancy there is a definite decrease. This alkalosis of pregnancy is replaced by a transient work acidosis during labor but reappears during the puerperium. After from five to eight days post partum, the true reaction of the blood becomes normal.

Nature of Passage of Electrolytes Through Placenta.—On the basis of a comparative study of the potassium and calcium contents of the blood of seventeen mothers and their new-born infants, Krane concludes that in the passage of blood salts from the mother to the fetus, the placenta does not play an active part. The differences noted between the concentrations of potassium and calcium in the mother's serum and in the infant's serum can be explained by purely physicochemical processes.

Duration of Pregnancy in Cases in Which Blood Groups of Mother and Child Differ.—Goroncy determined the blood of the mother and child in fifty-seven puerperas in whom it was possible to fix the time of conception with a high degree of certainty. He found that in instances in which the mother belonged to group A and the infant to group O, the duration of the pregnancy was decreased, whereas in instances in which the mother belonged to group O and the infant to group A, it was increased.

Zeitschrift für Krebsforschung, Berlin

30: 449-545 (Jan. 23) 1930

*Significance of Vitamin Injuries in Production of Cancer. O. L. E. de Raadt.—p. 449.
*Cancer: Relation Between Action of Roentgen Rays and Calcium Distribution. M. A. Magath and M. J. Kolomijetz.—p. 457.
Chemotherapy in Inoculated and Spontaneous Tumors. P. Zadik.—p. 473.
*Development of Cancer in Tuberculous Ulcer. R. Wolf.—p. 482.
Antagonism Between Tuberculosis and Cancer. Teutschlaender.—p. 498.
Oxidoreduction of Malignant Tumors. H. Heinlein.—p. 506.
Cancer Mortality in Cologne from 1910 to 1927. F. Meerbeck.—p. 513.

Significance of Vitamin Injuries in Production of Cancer.—On the basis of his experiments on mice, de Raadt states that vitamin injuries do not play a part in the production of cancer in man. The carcinogenic action of a diet containing no vitamin A is the result of the alkalosis it produces. In man also there are a number of important proofs for the statement "without nutritional alkalosis no cancer."

Cancer: Relation Between Action of Roentgen Rays and Calcium Distribution.—Magath and Kolomijetz present the results of their study of the changes produced in embryonal tissue by roentgen irradiation. Their observations indicate that the changes in tissue following roentgen irradiation are not in direct relation to chemically demonstrable changes in the distribution of calcium.

Development of Cancer in Tuberculous Ulcer of Stomach.—To the two instances of tuberculous ulcer of the stomach with secondary development of cancer reported in the literature, Wolf adds a third case in a man, aged 69, who declined an operation for a suspected acute cholecystitis and who died eight weeks later from an extensive, progressive pulmonary tuberculosis. Postmortem examination disclosed a polypoid tumor of the stomach situated on the base of one of three ulcers. When the specimen was examined microscopically, it was found that the ulcers were tuberculous and that in the polypoid formations there were definite signs of cancerous degeneration.

Zeitschrift für Tuberkulose, Leipzig

55: 387-464 (Jan.) 1930

Combat Against Tuberculosis in the Netherlands. R. N. M. Eykel.—p. 389.
Healing of Early Cavities. W. Bronkhorst.—p. 392.
*Value of Pirquet Reaction for Prognosis in Pulmonary Tuberculosis. M. W. Marsman.—p. 400.
*Results of B C G Vaccination in Amsterdam. M. R. Heynsius van den Berg.—p. 401.
*Tuberculosis of Brain. E. Gorter.—p. 414.
Elongation of Lower Extremity in Tuberculous Gonitis. D. von Dorp-Beucker-Andreae.—p. 419.
Erythrocyte Sedimentation and Leukocyte Picture in Surgical Tuberculosis. G. J. Huët.—p. 423.
Erythrocyte Sedimentation and Leukocyte Picture in Prognosis in Pulmonary Tuberculosis. H. Vos.—p. 431.
Presence of a Filtrable Virus in Tuberculosis. J. T. Leusden.—p. 437.
Work Treatment and After-Care of Patients in Tuberculosis. J. L. van Lier.—p. 444.
Differential Diagnosis Between Echinococcus Infection of Lung and Tuberculosis. H. R. Gerbrandy.—p. 451.

Value of Pirquet Reaction for Prognosis in Pulmonary Tuberculosis.—Marsman does not agree with the investigators who believe that the prognosis in cases of pulmonary tuberculosis in which the patient gives a strongly positive Pirquet reaction is better than it is in cases in which the patient gives a weakly positive or a negative reaction. Of ninety-four patients in whom the test was performed five or more weeks before death, eighty-five gave a positive and nine a negative reaction; of twenty-six patients in whom the test was performed four weeks or less before death, eleven gave a positive and fifteen a negative reaction. One patient gave a positive reaction three days before he died. As a result of these observations, the author believes that in pulmonary tuberculosis it is impossible to make a prognosis on the basis of the Pirquet reaction.

Results of B C G Vaccination in Amsterdam.—During the past four years, van den Berg has vaccinated perorally with B C G 260 infants exposed to open tuberculosis. The mortality from tuberculosis in these infants was only 6.2 per cent for the first two years, whereas for nonvaccinated infants likewise exposed to open tuberculosis it was 52.3 and 10.9 per cent, respectively. These figures indicate clearly that vaccination with B C G increases the resistance of infants to infection with virulent tubercle bacilli.

Tuberculosis of Brain.—Gorter reports the clinical history of a case of tuberculosis of the brain in a boy, aged 12. The condition developed following a trauma of the head. In two months the symptoms of meningitis had disappeared completely and the boy appeared to be perfectly healthy. Roentgen examination revealed a calcified tuberculous area in the right lateral ventricle.

Zentralblatt für Chirurgie, Leipzig

57: 257-320 (Feb. 1) 1930

Treatment of Congenital Fistula of Neck. P. Frangenheim.—p. 259.
*Case of Gas Peritonitis. J. Kudrnáč.—p. 260.
Chronic Idiopathic Adhesive Peritonitis. I. Borkowski.—p. 262.
Results of Ether-Carbon Dioxide Anesthesia of Ombrédanne: Presentation of a New Apparatus. W. Kleber.—p. 265.
*Obstruction of Ductus Choledochus in Child by Calculus Incarcerated in Vater's Papilla. A. Pop and E. Muresan.—p. 267.
Melena Neonatorum and Perforated Duodenal Ulcer. I. S. Schwartz.—p. 270.
Syphilis or Tuberculosis? O. Boyksen.—p. 277.
*Injury of Ductus Choledochus. F. Metzler.—p. 279.

Gas Peritonitis.—Kudrnáč relates the case of a young man, aged 18, who had rheumatism. Three weeks after this began,

he complained of indefinite pains in the region of the stomach. He did not vomit, and his bowels moved regularly. Examination did not disclose any cause for the pain. Slowly his abdomen became larger, until finally it resembled a balloon and was hypertympanitic all over. Free fluid could not be demonstrated. The patient no longer complained of pain. The abdomen was opened. Immediately gas was evacuated and, having been under great pressure, the escaping gas made a noise like that of an explosion. The abdominal walls collapsed. No cause for this accumulation of gas could be found. All organs appeared to be normal. The appendix was long and slightly injected, but otherwise did not give any evidence that it had anything to do with the gas formation. However, it was amputated. The patient made an uneventful recovery. The cause of gas peritonitis remains unknown. The author does not offer any theory.

Obstruction of Ductus Choledochus by Calculus.—The anamnesis and symptoms in the case related by Pop and Muresan, in a boy, aged 13, led to a diagnosis of perforated duodenal ulcer. A laparotomy was performed immediately. No evidence of gastric, duodenal or jejunal ulcer was found. Hence, the preoperative diagnosis was wrong. However, the gallbladder was as large as an orange; the cystic duct was much dilated, but stones could not be palpated. The ductus choledochus was punctured and 80 cc. of bile, containing very little pigment, was removed. Palpation of the duct revealed a stone lying near the head of the pancreas. It was fixed in the papilla of Vater. It was removed through a small opening made in the duct wall. The authors discuss the reasons for their failure to make a correct diagnosis in this case and direct attention to one symptom which they regard as of great value in arriving at a correct diagnosis, namely, an extreme degree of resistance of the muscles of the abdominal wall in the epigastric zone, with a slight tympanites, which prevented palpation of the abdomen. There was neither icterus nor vomiting, and only a trace of bile in the urine. In other words, retention of bile did not produce the usual symptoms seen in such cases occurring in adults. The muscle rigidity in the upper abdomen is regarded as being a diagnostic symptom.

Injury of Ductus Choledochus.—Metzler relates the case of a young man, aged 19, who had been struck in the abdomen by the horns of a cow, without sustaining any external injury. Ten hours after the injury, he showed some signs of peritonitis and four hours later a laparotomy was performed. The abdominal cavity contained some free blood and a very large, extensive retroperitoneal hematoma. No other sign of an injury could be discovered; hence the abdomen was closed. Three days later symptoms of peritonitis appeared suddenly. The patient's condition quickly became so bad that operation could not be performed. He died the following day with symptoms of a diffuse peritonitis and failing heart. At necropsy a small tear of the posterior wall of the duodenum and the choledochus was found 1 cm. above the papilla of Vater. A cavern filled with bile had formed, and into this the pancreatic duct opened. This tear had remained undiscovered at the operation, although the author states that a very careful search for such an injury had been made.

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Exophthalmic Goiter: Postoperative Deaths: Local or General Anesthesia? H. Rahm and M. Hass.—p. 322.
*Surgical Treatment of Enuresis in Adults. P. Graf.—p. 331.
*Use of Ferric Chloride Solution as Hemostatic During Operative Treatment of Rhinophyma. A. A. Wetschtomow.—p. 333.
Amputation of Forearm à la Krukenberg: Providing Grasping Power by Stump. W. Porzelt.—p. 335.
Bleeding and Seeping Nipples. F. Kuthe.—p. 341.
Resection of Stomach by Haberer's Technic (Termino-Laterale Gastro-Duodenoanastomose). H. Hilarowicz.—p. 343.
Simplification of Thoracoplasty: Operating in Two Stages. W. C. Meiss.—p. 349.
Treatment of Headaches Following Spinal Anesthesia. T. Burghele.—p. 354.
Case of Spontaneous Rupture of Bladder. S. Simeonow.—p. 356.

Surgical Treatment of Enuresis.—The operation performed by Graf in two patients, both adults, consists is raising two flaps of fascia from the abdominal rectus muscle so that the pyramidal muscle is situated in the lower end of the flaps, the attached end. These two strips are wrapped around the neck of the bladder and the posterior urethra, one entering a tunnel made for that purpose from either side, so as to raise the urethra and at the same time slightly obstruct it. The result is said to have been very satisfactory.

Hemostasis During Operation for Rhinophyma.—After shaving off the rhinophyma, Wetschtomow applies gauze packs, saturated with a ferric chloride solution, to the bleeding nose. The result is a complete hemostasis. In one case the solution was applied while the operation was in progress. Bleeding was checked immediately and made it possible to complete the operation in a blood-free field.

Norsk Magasin for Lægevidenskapen, Oslo

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*Hinton Glycerin-Cholesterol Agglutination Reaction in Syphilis. N. Danbolt and E. Härne.—p. 153.
*Aertrycke Infection: Case. P. M. Holst.—p. 168.
Tuberculosis Endemic in School in South of Norway. H. Trætteberg.—p. 175.
Diastase and Blood Sugar in Diagnosis of Diseases of Pancreas. E. Hegge.—p. 182.
*Tularemia: Three Cases in Norway. T. Thjøtta.—p. 224.

Hinton Glycerin-Cholesterol Agglutination Reaction in Syphilis.—Danbolt and Härne report that the results of the Hinton and Wassermann reactions agreed in 1,110, or 92.5 per cent, of the serums examined and in 90 per cent of the cases of primary, secondary, tertiary and congenital syphilis. In secondary syphilis there was complete agreement. In treated syphilis the results agreed in 86.95 per cent of the cases, the Hinton reaction being somewhat more sensitive. In old latent syphilis the Hinton test was more sensitive, a fact which may be advantageous in certain cases, as in cardiovascular disorders, but misleading in the treatment of distinctly nonsyphilitic conditions. The results tallied in 94 per cent of the 100 spinal fluids from patients with treated or untreated syphilis of the nervous system or diseases of nonsyphilitic origin. The method in the Hinton test is simpler than in other precipitation reactions, particularly Kahn's reaction.

Aertrycke Infection: Case.—Holst's patient lived on a farm where all persons became affected with diarrhea about two weeks after the beginning of an epizootic in which between eighty and ninety hogs died from enteritis. *Bacillus aertrycke* isolated from the patient's feces was agglutinated by both the patient's serum and serum from two sick hogs.

Tularemia: Three Cases in Norway.—Thjøtta describes three typical cases of ulceroglandular tularemia and queries whether a peculiar disease known among the Norwegian laity as "lemming fever" may be due to *Bacterium tularense*. The disease is believed to be due to drinking water infected with the feces and carcasses of lemmings.

Ugeskrift for Læger, Copenhagen

92: 131-152 (Feb. 6) 1930

*Staphylomycosis with Especial Regard to Treatment of Furuncles and Carbuncles. S. Hansen.—p. 131.
Nicotine as Means of Suicide. M. Schmidt.—p. 134.
*Treatment of Tuberculosis of Lymph Nodes. A. Ellehauge.—p. 136.

Staphylomycosis with Especial Regard to Treatment of Furuncles and Carbuncles.—In all cases of furuncles and carbuncles in the initial stage, Hansen advises purely conservative treatment. In all surgical cases excision of the necrotic tissue with a small sharp knife, with the introduction of a tent saturated with normal horse serum, is recommended as a quick, painless and sufficiently radical surgical intervention. During the last two years 130 cases of furuncles and carbuncles in the surgical stage have been successfully treated by him by this method.

Treatment of Tuberculosis of Lymph Nodes.—Ellehauge reports on the results of after-examination in fifty cases of tuberculous adenitis of the neck treated with roentgen rays, combined in the suppurative cases with small operative interventions. In only three of the cases was the condition complicated by tuberculosis in other organs. There was slight recurrence in about 12 per cent, in half of which healing took place without medical attention. Early and thorough operative treatment seems to him to be an important factor in the treatment.